EFFECTIVENESS OF NURSING CARE ON CHILDREN WITH URINARY TRACT INFECTION

By

MISS. V. NARMATHA

A Dissertation submitted to
THE TAMIL NADU DR. M.G.R. MEDICAL UNIVERSITY,
CHENNAI.

IN PARTIAL FULFILMENT OF THE REQUIREMENT FOR THE DEGREE OF

MASTER OF SCIENCE IN NURSING.

MARCH – 2010.

EFFECTIVENESS OF NURSING CARE ON CHILDREN WITH URINARY TRACT INFECTION

By

Miss. V. NARMATHA

M.Sc., (Nursing) Degree Examination,

Branch – II, Paediatric Nursing,

Adhiparasakthi College of Nursing,

Melmaruvathur – 603 319.

A Dissertation submitted to

THE TAMIL NADU DR. M.G.R. MEDICAL UNIVERSITY,

CHENNAI.

IN PARTIAL FULFILMENT OF THE REQUIREMENT FOR THE DEGREE OF

MASTER OF SCIENCE IN NURSING

MARCH – 2010.

CERTIFICATE

This is to certify that **EFFECTIVENESS OF NURSING CARE ON CHILDREN WITH URINARY TRACT INFECTION** is a bonafide work done by **Miss.V. NARMATHA,** Adhiparasakthi College of Nursing, Melmaruvathur – 603 319, in partial fulfillment for the University rules and regulations towards the award of the degree of Master of Nursing, Branch - II, **Paediatric Nursing**, under our guidance and supervision during the academic year 2008 - 2010.

Signature: _____

Dr. N. KOKILAVANI, M.Sc.,(N)., M.A., (Pub. Adm.), M.Phil.,Ph.D.,
Principal,
Adhiparasakthi Ccollege of Nnursing,
Melmaruvathur - 603 319,
Kanchipuram district,
Tamilnadu.

EFFECTIVENESS OF NURSING CARE ON CHILDREN WITH URINARY TRACT INFECTION

By

Miss. V. NARMATHA

M.Sc.,(Nursing) Degree Examination,

Branch – II, Paediatric Nursing,

Adhiparasakthi College of Nursing,

Melmaruvathur – 603 319.

Dissertation submitted to THE TAMIL NADU DR. M.G.R. MEDICAL UNIVERSITY, CHENNAI in partial fulfillment of the requirement for the Degree of Master of Science in Nursing March -2010.

_____ _____

Internal Examiner **External Examiner**

EFFECTIVENESS OF NURSING CARE ON CHILDREN WITH URINARY TRACT INFECTION

APPROVED BY DISSERTATION COMMITTEE

on March - 2010.

Signature: _____

Dr. N. KOKILAVANI, M.Sc.,(N)., M.A., (Pub. Adm.), M.Phil., Ph.D.,
PRINCIPAL AND HEAD OF THE DEPARTMENT - RESEARCH
ADHIPARASAKTHI COLLEGE OF NURSING,
MELMARUVATHUR - 603 319.

Signature: _____

Prof. B. VARALAKSHMI, M.Sc.,(N)., M.Phil.,
HEAD OF THE DEPARTMENT - PAEDIATRIC NURSING,
ADHIPARASAKTHI COLLEGE OF NURSING,
MELMARUVATHUR - 603 319.

Signature: _____

Dr. PADMA, M.B.B.S., D.C.H., D.N.B
DEPARTMENT OF PAEDIATRICS
MELMARUVATHUR ADHIPARASAKTHI INSTITUTE OF MEDICAL SCIENCES,
MELMARUVATHUR - 603 319.

A Dissertation submitted to

THE TAMIL NADU DR. M.G.R. MEDICAL UNIVERSITY,

CHENNAI.

IN PARTIAL FULFILMENT OF THE REQUIREMENT FOR THE

DEGREE OF

MASTER OF SCIENCE IN NURSING.

MARCH – 2010.

ACKNOWLEDGEMENT

I express my gracious and immense pleasure to thank for his Holiness **ARULTHIRU AMMA Bangaru Adigalar** and to **THIRUMATHI LAKSHMI BANGARU ADIGALAR,** vice present, Melmaruvathur Adhiparasakthi Institute of Medical Sciences, Melmaruvathur for their bovonteous blessings to carry out the study effectively.

I have a great inclination to thank **SAKTHI THIRU.Dr.T.RAMESH, M.D.,** Managing Director Melmaruvathur Adhiparasakthi Institute of Medical Sciences & Research, for his tremendous contribution, valuable suggestions, which has truly salvaged my study at several stages.

I also express my gratitude to **SAKTHI TMT.DR.S.SRILEKHA, M.B.B.S.., D.G.O.,** Director, Administration of Melmaruvathur Adhiparasakthi Institute of Medical Sciences& Research, for her constant guidance and thoughtful suggestions.

Its my immense pleasure to thank **Dr.N.KOKILAVANI, M.sc(N)., M.A., (PUB. ADM.), M.PHIL., Ph.D., Principal,** Adhiparasakthi College of Nursing, who initiated, guided, constantly motivated, encouraged, who gave valuable suggestions from the pros period of the study till the con period of the study.

I wish to express my gratitude and my sincere thanks to **Prof.Mrs.B.Varalakshmi,M.Sc.,(N).,M.Phil.,** Vice Principal Head of the department, paediatric nursing for her thought provoking, stimulating, encouraging and for valuable suggestions from the initial period of the study till the end period of the study.

I would like express my immense thanks to **Dr. PADMA, M.B.B.S., D.C.H., D.N.B., Department of Paediatrics,** Adhiparasakthi Institute of Medical Sciences and Research, for her valuable suggestions throughout the study.

I extend my special thanks to **Prof. Mrs. Anitha rajendrababu, M.Sc (N) Principal,** Rajalakshmi College Of Nursing for her suggestions, guiedence for completing the study.

I would like to express my thanks to **Mrs. D. Kalaimani., M.Sc (N), M.Phil.,** Reader ,Paeditric nursing for her support ,encouragement for the completing the study

I extend my special thanks to **Mrs. E. Srignanasoundari., M.Sc (N), M.Phil,** Reader, Paediatric nursing for her constant motivation and support to complete the study

I wish to extend my thank to **Mrs.D.Shakila, M.Sc (N), M.Phil,** Reader Paeditric nursing for her valuable suggestions to complete the study effectively.

I feel pleasure to extend my gratitude and sincere thanks to **Mr. A. SURIYA NARAYANAN, M.A., M.Phil, Lecturer** in English, Adhiparasakthi College of Nursing, Melmaruvathur for his constant support to the completion of the study.

I extend my sincere tanks to **Mr.B.Ashok, M.Sc., M.Phil.,** Assistant Professor in Bio-Statistics, for his valuable suggestions in data analysis to complete the study Adhiparasakthi College of Nursing, Melmaruvathur.

I would like to express my immense thanks to **THE TAMILNADU DR. M.G.R. MEDICAL UNIVERSITY** Library helped me to refer books and journals for my dissertation.

I express my grateful thanks to **Mr. CHANDRAN,** Librarian Adhiparasakthi College of Nursing, Melmaruvathur who helped me to refer books and journals for my dissertation.

I wish to express my grateful thanks to all the non-teaching faculties Adhiparasakthi College of Nursing, Melmaruvathur.

I am indebted to all consultants and nurses of Melmaruvathur Adhiparasakthi Institute of Medical Science, for helping me in acquiring excellence to complete my project work.

My gratitude extends to all my friends and colleagues, who helped in completing the study effectively.

LIST OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF APPENDICES

CHAPTER-I

INTRODUCTION

The most common genito urinary disease in children and the second most common infection in children is urinary tract infection. Urinary tract infection is the name given to an infection of any part of the urinary system.

Dorothy Elinor stonely, et.al., (2009) reported that when we digest food, waste products are left behind in our blood and are removed by either the liver or the kidneys. The most important waste product removed by the kidneys is called urea, which is largely made up of nitrogen. Urea is mixed with water to produce urine.

The urine is passed down from the kidneys, through the ureters and into the bladder. The bladder is emptied by urinating, when the urine passes from the bladder through the urethra and out of the body.

A urinary tract infection develops when part of your urinary system becomes infected, usually by bacteria. Bacteria can enter your urinary system through the urethra or, more rarely, through your bloodstream.

Khanna.et.al.,(2009) stated that there is often no clear reason why a child develops a urinary tract infection. However, there are some conditions that are known to increase the risk of a child developing a urinary tract infection, such as constipation. Urinary tract infection is not contagious. Young children may also prone to a urinary tract infection by transferring bacteria from their anus to their urethra while learning to wipe their bottom correctly. Teaching your child to wipe their bottom from front to back will reduce the chance of bacteria entering the urethra.

There are two different types of urinary tract infection:

- **Lower urinary tract infection:** this is an infection of the lower part of the urinary tract, which includes the bladder and the urethra. An infection of the bladder is called cystitis and an infection of the urethra is known as urethritis.
- **Upper urinary tract infection:** this is an infection of the upper part of the urinary tract, which includes the kidneys and the ureters. An infection of the kidneys is called pyelonephritis.

Upper urinary tract infections are potentially more serious than lower urinary tract infections because there is a possibility of kidney damage. Urinary tract infection in children is relatively uncommon compared with urinary tract infection in adults. Around 11% of girls

and 4% of boys will have a urinary tract infection before they are 16 years of age. Urinary tract infection is more common in girls, except during the first six months of life when they are more common in boys.

Heaton.et.al.,(2009) reported that most urinary tract infection occur during childhood are lower urinary tract infections, such as cystitis. Only 3% of young girls and 1% of young boys develop an upper urinary tract infection. Left untreated urinary tract infections, particularly upper urinary tract infections, can cause a number of serious problems including kidney damage or even kidney failure. However, with treatment, the outlook for a child with a urinary tract infection is excellent. Urinary tract infections can easily be treated with antibiotics and the risks of any complications are low.Urinary tract infection describes a health problem that results from a bacterial infection along the urinary tract.

Christieanson.et.al.,(2009) concluded that urinary tract infection is uncommon in children younger than 3 to 5 years, but unlikely in boys at any age, unless an obstruction is present. They are much more common in girls as a result of a shorter urinary tract. Uncircumcised males are more likely to develop urinary tract infection

than circumcised males. Children with a complete or partial blockage in the urinary tract are more likely to develop urinary tract infection.

Normal urine is sterile and contains fluids, salts, and waste products. It is free of bacteria, viruses, and fungi. An infection occurs when microorganisms, usually bacteria from the digestive tract, cling to the opening of the urethra, the hollow tube that carries urine from the bladder to the outside of the body, and begin to multiply.

Marino.et.al.,(2008) reported that most infections arise from Escherichia coli (E. coli) bacteria, which normally live in the colon. A urinary tract infection may involve different sections of the urinary tract including the following:

- **Urethritis-**an infection of the urethra, the hollow tube that drains urine from the bladder to the outside of the body.
- **Cystitis-**a bacterial infection in the bladder that often has moved up from the urethra.
- **Pyelonephritis-**an infection of the kidneys that is usually a result of an infection that has spread up the tract, or from an obstruction in the urinary tract. An obstruction in the urinary tract causes urine to back flow into the ureters and kidneys.

Kerr.et.al, (2008) concluded that a boy with a urinary tract infection or girls under age 5 or 6 may require further diagnostic testing with a renal ultrasound. This is a diagnostic imaging technique that uses high-frequency sound waves and a computer to create images of blood vessels, tissues, and organs. Ultrasounds are used to view internal organs as they function, and to assess blood flow through various vessels. Avoiding cystourethrography may also be needed in some children to evaluate the bladder and urethra and to detect reflux (in which urine backs up to the kidneys instead of flowing out through the urethra).

Bagga et.al., (2008), reported that urinary tract infections: evaluation and treatment. Urinary tract infections are the second most common bacterial infection in children after those of the respiratory tract. These infections are important in view of their acute morbidity and the long-term risk of renal scarring. Occurrence of urinary tract infection below two years of age, delay in starting treatment and presence of vesicoureteric reflux or obstruction are the chief risk factors associated with renal scarring. The distinction between upper and lower urinary tract infections is difficult and the choice of therapy guided by the patient's age and severity of clinical manifestations. All children with urinary tract infection should be

investigated to identify those with an underlying urinary tract anomaly.

Stanley Heller stein, et.al. (**2OO8)** investigated urinary tract infection is one of the most common infections of childhood. It distresses the child, concerns the parents, and may cause permanent kidney damage. In some instances, urinary tract infection results in recognition of an important underlying structural or neurogenic abnormality of the urinary tract. When urinary tract infection is diagnosed in a child, an attempt should be made to identify any risk factors for the urinary tract infection e.g., anatomic anomaly, voiding dysfunction, constipation.

NEED FOR THE STUDY:-

Racicot .et.al., (2009) reported that urinary tract infection occurs in 3-5%of girl's and1%of boys. In girls the first urinary tract infection usually occurs by the age of 5years, with peaks during infancy and toilet training.

Urinary tract infections are one of the most common bacterial infections in children. They cause acute morbidity and may result in long-term medical problems, including hypertension and reduced renal function. Management of children with Urinary tract infection

involves repeated patient visits, use of antimicrobials, exposure to radiation, and cost. Accurate diagnosis is extremely important for two reasons: to permit identification, treatment and evaluation of the children who are at risk for renal damage, and to avoid unnecessary treatment and evaluation of children who are not at risk, for whom interventions are potentially harmful and provide no benefit. Good follow-up care is the hallmark of adequate management of young children with urinary tract infection.

Landry.et.al, (2009) reported that the incidence of first-time urinary tract infection is highest during the first year of life. Before 1 year of age, girls have a lower risk of urinary tract infection than boys, particularly uncircumcised boys who have a >10-fold higher incidence of infection than girls or circumcised boys. Recognition of a young child at risk for urinary tract infection is important from the management point of view; factors increasing the risk of urinary tract infection in children . In girls the recurrence rate for urinary tract infection is substantial, regardless of the presence or absence of a urinary tract abnormality. the number of recurrences increases

The greatest risk of recurrence is during the first few months after an infection. Data support the concept that delay in instituting appropriate treatment of acute pyelonephritis increases the risk of

renal damage; the risk of renal damage increases as the number of recurrences increases.

Mackner et.al., (2008) stated that in children outside the neonatal period and without complicating disorder of the urinary tract (such as calculus, obstruction or neurogenic bladder), the vast majority of urinary tract infections (>80%) are caused by Escherichia coli. Other organisms associated with urinary tract infection in children include Klebsiella, Proteus, Enterobacter, Pseudomonas, Enterococcus (during the first 3 months of life most commonly), Staphylococcus aureus (mostly associated with indwelling catheters), group B Streptococcus (neonatal pathogen), Adenovirus (haemorrhagic cystitis) and Candida spp. (mostly a neonatal pathogen). A recently published study of children admitted to a tertiary care hospital with the diagnosis of community-acquired urinary tract infection indicates that the prevalence of non-E. Coli uropathogens is increasing, particularly in high-risk groups (including boys, children with genitourinary abnormalities and cases with previous antibiotic usage.

Chatoor.et.al., (2008) reported that there are three basic forms of urinary tract infection: upper urinary tract infection (pyelone-phritis/ pyelitis), lower urinary tract infection (cystitis/urethritis) and

asymptomatic bacteriuria. It is difficult to differentiate between upper and lower urinary tract infection in infants and young children because the signs and symptoms are often non-specific, with fever as the most common initial complaint.

As many 25% of children without symptoms of pyelonephritis are found by urethral catheterisation to have renal bacteraemia, when the risk of pyelonephritic scarring from future urinary tract infections is probably low.

Mortality related to urinary tract infection is exceedingly rare for otherwise healthy children in developed countries.

Gray.et.al., (2008) reported that morbidity associated with pyelonephritis is characterized by systemic symptoms, such as fever, abdominal pain, vomiting, and dehydration. Bacteremia and clinical sepsis may occur. Children with pyelonephritis also may have cystitis. Long-term complications of pyelonephritis are hypertension, impaired kidney function, end stage renal disease and complications of pregnancy e.g., urinary tract infection, pregnancy-related hypertension, low-birth-weight neonates.

STATEMENT OF THE PROBLEM:-

EFFECTIVENESS OF NURSING CARE ON CHILDREN WITH URINARY TRACT INFECTION

OBJECTIVES:-

1) to assess the health status of the children with urinary tract infection
2) to evaluate the effectiveness of nursing care on children with urinary tract infection
3) to find out the association between selected demographic variables with the effectiveness of nursing care on children with urinary tract infection.

OPERATIONAL DEFINITIONS:-

EFFECTIVENESS:-

It refers to outcome in nursing care and promotes the health status of children with urinary tract infection which are assessed and evaluated by standardized tool.

NURSING CARE:-

Nursing which includes vital parameters and providing care such as tepid sponging for fever, improving fluid intake, dietary management, personal hygiene, perineal care ,teaching toilet training, voiding habits, health teaching on urinary tract infection provided by investigator to the children with urinary tract infection from admission to till the time of discharge.

CHILDREN:-

The children refer to those who are diagnosed as urinary tract infection.

URINARY TRACT INFECTION:-

Urinary tract infection is defined as infection and inflammation of urinary tract due to micro organisms. It involves the urethra, bladder, ureters, renal pelvis and renal parenchyma.

ASSUMPTIONS:-

1) Daily assessment of the children ensure to gain thorough knowledge about progress in children's health condition and provide guideline for the nurse to implement a need based care, and reduces the severity of urinary tract infection.

2) Individualized nursing care will reduce the signs and symptoms of urinary tract infection.

LIMITATIONS:-

1) The study period is limited to six weeks
2) The samples were limited to thirty.
3) Children who have diagnosed as urinary tract infection were selected.

PROJECTED OUTCOME:-

The study exhibits that the nursing care would be effective with vital improvements on the health condition of the children with urinary tract infection.

CONCEPTUAL FRAME WORK

The framework used in the study is based on Orlando's theory of the deliberative nursing process model.

The investigator has modified Orlando's deliberative nursing process.

Orlando's theory of the deliberative nursing process consists of:

Child behavior:-

The child was assessed by using ongoing assessment tool.

Investigator reactions:-

The assessment of the child with urinary tract infection and needs of the child.

Investigator activity:-

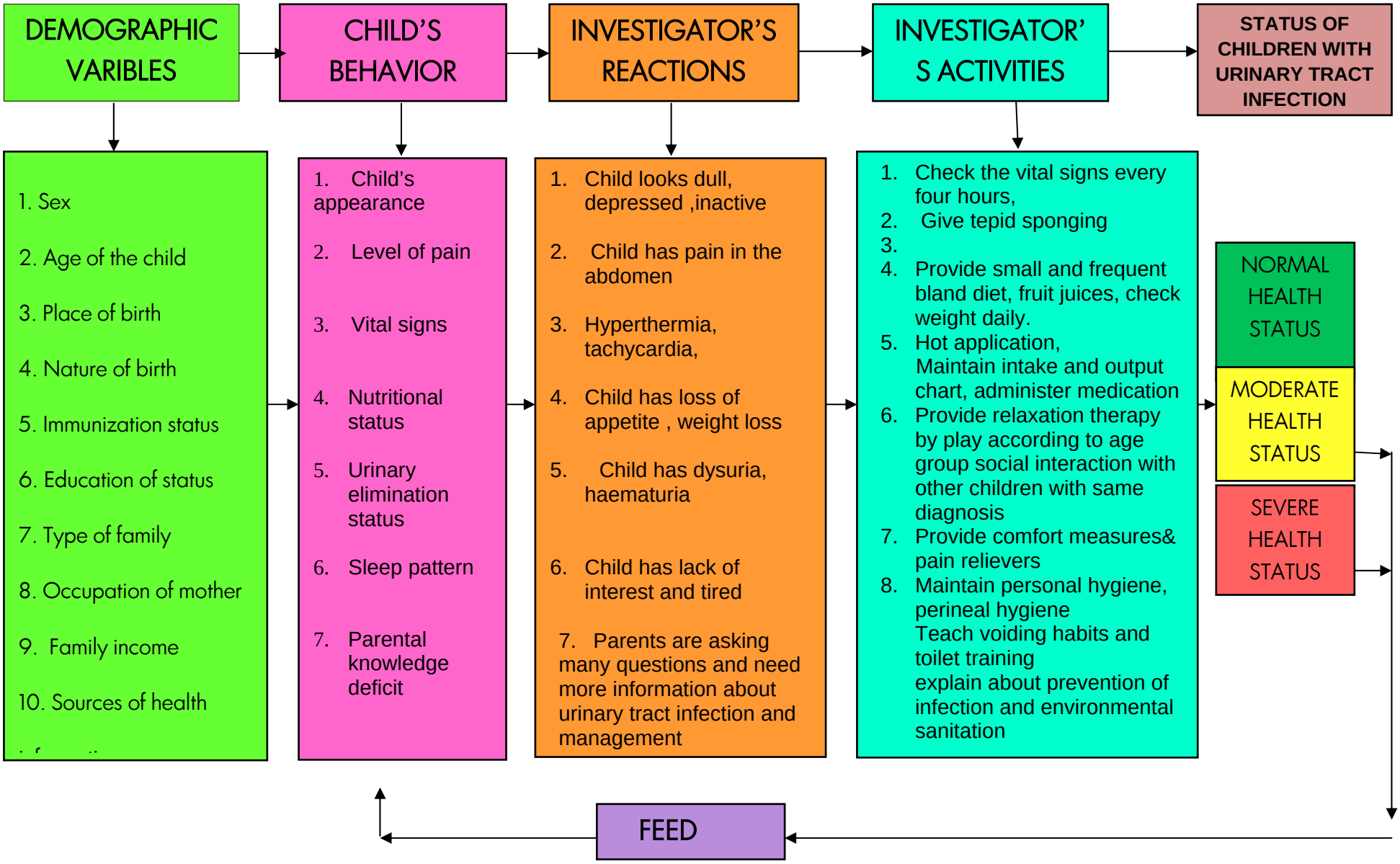
Based on the needs of the child the investigator provided nursing care to the child.

Evaluation:-

At the end of nursing care which is provided by the investigator, effectiveness was evaluated by improved child's behavior and needs.

Feed back:-

It provides the effectiveness of nursing care on children with urinary tract infection.



ORLANDO'S THEORY OF DELIBERATE NURSING PROCESS (1999)

I

CHAPTER-II

REVIEW OF LITERATURE

Polit (1999) stated that a research must be unbiased and replicable and a researcher must be above of community errors while planning the projects, collecting the required topic to gain insight and to collect information for laying the foundation of study.

This chapter entails;

I. **REVIEW OF LITERATURE RELATED TO ETIOLOGY OF URINARY TRACT INFECTION**

II. **REVIEW OF LITERATURE RELATED TO SIGNS AND SYMPTOMS OF URINARY TRACT INFECTION**

III. **REVIEW OF LITERATURE RELATED TO DIAGNOSTIC TESTS OF URINARY TRACT INFECTION**

IV. **REVIEW OF LITERATURE RELATED TO MANAGEMENT OF URINARY TRACT INFECTION**

V. **REVIEW OF LITERATURE RELATED TO PREVENTION OF URINARY TRACT INFECTION**

II. REVIEW OF LITERATURE RELATED TO ETIOLOGY OF URINARY TRACT INFECTION:-

Alshamsam C,et.al.,(2009) reported the value of renal ultrasound in children with a first episode of urinary tract infection**.** Study show that the renal ultra sound has a little value in the management of children with a first urinary tract infection.

Aktas G E et.al.,(2008) investigated the influence of vesicoureteral reflux on dimercaptosuccinic acid scintigraphic patterns in children with first symptomatic urinary tract infection investigation showed that the presence of vesicoureteral reflux affects dimercaptosuccinic acid patterns in children with first symptomatic urinary tract infection.

Bell LE ,et.al., (2009) developed a update on childhood urinary tract infection and vesicoureteral reflux**.** Urinary tract infection is a leading cause of serious bacterial infection in young children. Vesicoureteral reflux, a common pediatric urologic disorder, is believed to predispose to urinary tract infection, and both are associated with renal scarring. The recently launched randomized intervention for children with vesicoureteral reflux study hopefully will

provide insight into the role of antimicrobial prophylaxis of urinary tract infection in children with vesicoureteral reflux .

Blance MT et.al.,(2009) described fungemia caused by Candida lipolytica.Candida lipolytica has rarely been reported as a human pathogen. We observed two cases of fungemia caused by Candida lipolytica, one of them in a 12-year-old child with cystic pancreatic fibrosis in advanced phase and another in a 86-year-old woman who presented vesical neoformation with peritoneal fibrosis, bilateral hydronephrosis and recurrent urinary tract infections. After antifungal treatment and catheter removal, the fungemia appeared to be finished and blood cultures were negative.

Bukh AK, et.al.,(2009) investigated that Escherichia coli phylogenetic groups are associated with site of infection and level of antibiotic resistance in community-acquired bacteraemia**.** Phylogenetic group B2 was predominant in E. coli CAB. This was the least resistant of the four groups. Phylogroups A and B1 were associated with sites of infection other than the urinary tract, and resistance to multiple antibiotics was most prevalent for groups A and D

Etoubleau C et. al.,(2009) reported that moving from bag to catheter for urine collection in non-toilet-trained children suspected of having urinary tract infection with a paired comparison of urine cultures**.** Altogether,bag-obtained specimens led to either a misdiagnosis or an impossible diagnosis in 40% of cases versus 5.7% when urethral catheterization was used. Every bag-obtained positive-result urinalysis should be confirmed with a more reliable method before therapy

Hsich MH et.al.,(2009) developed a report on urologic diagnoses among infants hospitalized for urinary tract infection. They identified 914 infants hospitalized at their institution from January 1996 to December 2007, with an ICD-9-coded diagnosis of urinary tract infection. Of these 914 infants, 258 were subsequently given a urologic diagnosis. The most common diagnoses were hydronephrosis (37.7%), vesicoureteral reflux (69.2%), and obstructive uropathy (23.1%). They therefore conclude that infants admitted with a diagnosis of urinary tract infection should undergo screening for anatomic abnormalities.

Lim R et.al.,(2009) studied vesicoureteral reflux and urinary tract infection evolving practices and current controversies in pediatric

imaging**.** Multi technique imaging of urinary tract infection & vesicoureteral reflux is complex and controversial. Evolution in practice patterns is motivated by the desire to rationally minimize unnecessary interventions and radiation exposure. Ongoing evidence-based research is needed to further improve practice guidelines.

MukharjeeS, et.al.,(2009) studied the effect of circumcision on risk of urinary tract infection in boys with posterior urethral valves. Seventy-eight patients were identified, mean age 6.7 years (range, 1-18). These boys experienced 78 urinary tract infections in the uncircumcised state. Subsequently, 27 were circumcised, experiencing 8 urinary tract infections. In posterior urethral valves, circumcision reduce the incidence of urinary tract infection by 83%, every circumcision prevents one urinary tract infection on average. Early circumcision in all posterior urethral valves is beneficial, but a larger randomized control trial should be considered to confirm this.

Ruppe E et.al.,(2009) estimated that CTX-M beta-lactamases in Escherichia coli from community-acquired urinary tract infections**,** In this study, we documented the prevalence of extended-spectrum beta-lactamases in E. coli that were responsible for community acquired urinary tract infections. They observed a high prevalence of

resistance to amoxicillin (88.2% of strains), cotrimoxazole (75.3%), ciprofloxacin (67.7%), gentamicin (42.5%), and third-generation cephalosporins (37.7%).The prevalence of CTX-M beta-lactamases has reached a critical level , which highlights the need for study of their spread in developing countries.

Serra A, et.al.,(2009) described value of imaging studies after a first febrile urinary tract infection in young children. Scans showed pyelonephritis in 54% of cases. Renal scarring developed in 15% of cases.

suresh kumar P ,et.al.,(2009) identified risk factors for urinary tract infection in children a population-based study of 2856 children**.** A total of 3.6% of children had a bacteriologically verified urinary tract infection, compared with 12.6% by parental report alone. Study showed that a history of structural kidney abnormalities , daytime incontinence, female gender , and encopresis were independently associated with urinary tract infection. Daytime incontinence increased risk more in boys than girls and kidney problems increased risk in older compared with younger children. Effective treatment of daytime urinary incontinence and encopresis may prevent urinary tract infection in children, especially boys.

III.REVIEW OF LITERATURERELATED TO CLINICAL FEATURES OF URINARY TRACT INFECTION IN CHILDREN:-

Kotoula A et .al.,(2009) suggested procalcitonin for the early prediction of renal parenchymal involvement in children with urinary tract infection. procalcitonin had the best performance, with sensitivity, specificity, and positive and negative predictive values of 89%, 97%, 96%, and 91% respectively. Serum procalcitonin is a better marker than ESR, CRP, and leukocyte count for the early prediction of RPI in children with a first episode of urinary tract infection.

Yilmaz A et,al., (2009) studied early prediction of urinary tract infection with urinary neutrophil gelatinase associated lipocalin.Neutrophil gelatinase associated lipocalin is a protein identified in human neutrophil granules. Neutrophil gelatinase associated lipocalin can be used as a novel, sensitive marker for early prediction of n the absence of acute kidney injury and chronic kidney disease, and the optimal cut off value for prediction of urinary tract infection is lower than the values determined for acute kidney injury. Further investigations with larger patient groups are required to confirm our results.

Goldman M et.al.,(2008) studied clinical features of community-acquired Pseudomonas aeruginosa urinary tract infections in children. In conclusion, Pseudomonas aeruginosa is associated with >1 previous urinary tract infection, urinary tract abnormalities, and past urinary tract surgery. They recommend that when urinary tract infection is suspected in children with these risk factors, a thorough radiologic investigation, including a vesico cysto uretero graphy, should be considered.

Nammalwar BR et.al.,(2005) evaluated the use of dimercaptosuccinic acid in culture positive urinary tract infection and culture negative acute pyelonephritis. It is suggested, that dimercaptosuccinic acid is a useful investigation for the diagnosis of acute pylonephritis in febrile urinary tract infection. Dimercaptosuccinic acid is indicated in febrile children with negative urine culture but with supportive evidence of urinary tract infection and in fever of unknown origin. An abnormal Dimercaptosuccinic acid is a strong indication for work up for vesico urethral reflex.

Ditchfield.MR ,et.al.,(2004) described Persistent renal cortical scintigram defects in children 2 years after urinary tract infection**.**, Renal cortical scintigraphic defects persisted in approximately one-quarter of young children after their first proven urinary tract infection. It is possible that some of the scintigraphic defects preceded the infection

by arising from either previously undiagnosed acute pyelonephritis or fromunderlying congenital dysplasia.

Mehr SS et.al.,(2004) identified cephalosporin resistant urinary tract infections in young children.Ampicillin/Amoxicillin or cephalexin may not be the optimal choice of antibiotic for the empiric treatment of urinary tract infection.

Wang SMet.al.,(2004) proved a group B streptococcal infections in children in a tertiary care hospital in southern Taiwan**.** In conclusion, group B streptococcal infection in children has different characteristics in different age groups. Serotype III is the most prevalent serotype in children. group B streptococcal isolates in southern Taiwan are still very susceptible to penicillin G.

Azuara M et.al.,(2003) found that elevated serum procalcitonin values correlate with renal scarring in children with urinary tract infection. A low procalcitonin value at admission indicates a low risk of long term renal scarring. Increased procalcitonin values at admission correlate with the presence of scars. procalcitonin values have proved to be more specific than C- reactive protein and leukocyte count for identifying patients who might develop renal damage.

Craig .JC et.al.,(2001) reviewed urinary tract infection associated with new perspectives on a common disease**.** Urinary tract infection is an important cause of morbidity in children, and affects up to 10% of the childhood population. Recent information suggests that the long-term outcome for children with urinary tract infection is much better than previously believed, with causal links to end-stage renal disease and hypertension not demonstrated despite 20-year cohort studies.

Christian MT et.al.,(2000) revealed risk assessment of renal cortical scarring with urinary tract infection by clinical features and ultrasonography**.** Urinary tract infection clinical features are important in assessing the need for dimercaptosuccinic acid imaging. Current UK imaging guidelines are endorsed, although preschool children with solitary lower tract urinary tract infection remain a controversial group and more attention needs to focused on children with recurrent urinary tract infection.

American Academy of Pediatrics. (1999) reviewed the diagnosis, treatment, and evaluation of the initial urinary tract infection in febrile infants and young children**.** The consequences of detection and early management of urinary tract infection are affected by subsequent evaluation and long-term management and, likewise,

long-term management of patients with urinary tract infection depends on how they are detected at the outset, the Subcommittee elected to analyze the entire process from detection of urinary tract infection to the evaluation for, and consequences of, urinary tract abnormalities.

Khan .AT et.al.,(1996) studied urinary tract infection in adolescent boys. Clinical and laboratory features of 21 adolescent males with urinary tract infections were studied. Sixty-seven percent were symptomatic and 80% revealed abnormalities on initial urinalysis. Forty-eight percent showed structural anomalies of the urinary tract. Recurrences were observed only in those having abnormalities of the urinary tract.

Mukaida N ,et.al.,(1993) examined that elevated interleukin-8 levels in the urine of patients with urinary tract infections**.** They examined whether interleukin-8 (IL-8), a potent neutrophil chemo attractant and activator, was involved in pyuria seen in urinary tract infection. This is the first documentation of IL-8 in the urine of patients with urinary tract infection, and these results imply that IL-8 is involved in inducing PMN migration into the urinary tract.

Rickwood AM ,et.al., (1992) proved that current imaging of childhood urinary infections prospective survey. Ultrasonography alone is inadequate for routine screening of childhood urinary infection. Though further investigations remain advisable in infants, in older children they can be restricted to a minority who have positive ultrasound examinations or have had fever or vomiting. Radioisotope examinations largely eliminate the need for intravenous urography.

Torrijos E et.al.,(1989) revealed that urinary tract infections associated with otitis media in infants and children**.**106 infants and children with otitis media were screened for the incidence of urinary tract infections by urine culture. 17 patients (16%) who had urinary tract infection were compared with the 80 patients with sterile urine for differences in host factors and laboratory features. Patients with urinary tract infection-associated otitis media had a higher incidence of hematuria. The lack of definite clinical and laboratory clues to determine the presence or absence of urinary tract infection, urine culture is the only test to uncover otitis media patients with concomitant urinary tract infection.

Morton RE et.al.,(1982) described frequency and clinical features of urinary tract infection in paediatric out-patients . The most common presenting complaints of urinary tract infection were pyrexia of unknown origin and mild diarrhea. The frequency of symptomatic urinary tract infection in out-patients was estimated at 0.4%. Asymptomatic urinary tract infection was common in children with nephrotic syndrome (16%) and severe malnutrition (23%). Follow-up could be maintained with greater success from local clinics.

IV.REVIEW OF LITERATURE RELATED TO DIAGNOSTIC TESTS OF URINARY TRACT INFECTION INCHILDREN:-

Gonzatez,et.al.,(2009) screened proteinuria in urinary infection and acute pyelonephritis in paediatric patients Renal scintigraphy is still being the reference pattern for the diagnosis of acute pyelonephritis in Pediatrics. The combined use of different urinary markers of renal function does not increase its sensitivity. It is necessary to do research in order to confirm the utility of new biomarker

Lee HY, et.al., (2009) studied the efficacy of ultrasound and dimercaptosuccinic acid scan in predicting vesicoureteral reflux in children below the age of 2 years with their first febrile urinary tract infection**.** However, we can anticipate spontaneous improvement

without complications in patients with either low or high grade reflux or negative findings on ultra sound and dimercaptosuccinic scan

Harmesh M ,et.al.,(2009) described how do dutch general practitioners diagnose children's urinary tract infections. The recommended test, a dip slide, was performed in 26% of the children with a follow-up contact. The diagnostic procedures for urinary tract infections in children in general practices could be improved, with focus on the importance of an accurate urinary tract infection diagnosis in all children, and explaining which tests should be performed and what the test results mean.

Lae WH,et.al.,(2009) studied Imaging in pediatric urinary tract infection for children younger than 2 years with urinary tract infection in the absence of underlying major congenital urinary tract abnormalities, they recommend that dimercaptosuccinic acid scintigraphy may be withheld if findings on both ultrasound and MCU examinations are normal.

Dogan HS et.al.,(2008) conducted non-invasive evaluation of voiding function in asymptomatic primary school children**.**,the Non-invasive tests in non-symptomatic children showed a range of

variability, and these deviations should be kept in mind during the evaluation of voiding characteristics of a child. The symptom scoring system, with the high sensitivity and specificity rates it possesses, it is one of the promising tools for symptom scoring system.

Hamoui N,et.al.,(2008) proved ultrasound fails to delineate significant renal pathology in children with urinary tract infections. Therefore, dimercapto-succinic acid scintigraphy should be considered in these patients to evaluate cortical defects and possibly guide further management

Narchi H,et.al.,(2008)detected that renal power doppler ultrasound does not predict renal scarring after urinary tract infection**.** Renal power doppler offered no advantage over ultrasound to predict renal scarring and cannot be recommended to predict renal scarring following urinary tract infection.

Nikfar.E et al (2009) investigated usefulness of procalcitonin rapid test for the diagnosis of acute pyelonephritis in children in the emergency department It is conclude that a rapid determination of procalcitonin concentration could be useful for the management of children with febrile urinary tract infection in the emergency room.

TappiainenT et .al., (2009) evolved biofilm formation by Escherichia coli isolated from patients with urinary tract infections**.** They concluded that the ability of bacteria to persist and grow in a biofilm seems to be one of the important factors in both the resistance to antibiotics and the severity of urinary tract inflammation.

Sangrador C et.al.,(2007) recommended diagnostic and therapeutic management of urinary tract infection in childhood. The current strategy of routine use of diagnostic imaging tests should be substituted by another strategy in which the use of these tests is individualized, taking into account each patient's level of risk.

Pugia MJ,et al(2004) proved that the uristatin dipstick is useful in distinguishing upper respiratory from urinary tract infections**.**The uristatin strip was more accurate than the leukocyte and nitrite dipsticks for predicting upper respiratory infections and C-reactive protein for those with infection or inflammation. The uristatin dipstick was able to detect both the bikunin and uristatin inhibitors.

Arslan S et.al.,(2002), studied use of urinary gram stain for detection of urinary tract infection in childhood**.**In this study, urinary culture, urinary Gram stain, and four tests within the urinalysis,

leukocyte esterase, nitrite, microscopyfor bacteria, and microscopyforpyuria, were examined in 100 children with symptoms suggesting urinary tract infection. Findings revealed that neither method of urine screen should substitute for a urine culture in the symptomatic patients in child

Farshad S.et.al.,(2009) reported that prevalence of virulence genes of E. coli strains isolated from children with urinary tract infection**.** To evaluate the prevalence of virulence genes in E. coli strains isolated from urine samples of children with urinary tract infection and their correlation with clinical data, demonstrated higher prevalence of pyelonephritis in the presence of E. coli virulence genes. Detection of the genes in urine samples may help in the management of urinary tract infection.

Gorelick MH,et al(1999) revealed that both Gram stain and dipstick analysis for nitrite and LE perform similarly in detecting urinary tract infection in children and are superior to microscopic analysis for pyuria.

Jantausch.B.A et.al.,(1994), studied uinary N-acetyl-beta-glucosaminidase and beta-2-microglobulin in the diagnosis of urinary tract infection in febrile infants**.** sensitivity and specificity of N-acetyl-

beta-glucosaminidase > or = 40 mumol/hour/mg of CR in predicting urinary tract infection. In febrile patients, regardless of the site of infection, were 88 and 88%, respectively. Increased urinary N-acetyl-beta-glucosaminidase is associated with urinary tract infection in febrile patients regardless of the level of infection and may be an informative indicator of urinary tract infection.

Tambic T et.al.,(1992), stated that diagnostic value of a P-fimbriation test in determining duration of therapy in children with urinary tract infection. The results indicate that the length of treatment of urinary tract infections in children should be adjusted according to the presence of bacterial P-fimbriae in addition to the patients' clinical condition.

V.REVIEW OF LITERATURE RELATED TO MANAGEMENT URINARYTRACT INFECTION IN CHILDREN:-

Betrosian. AP, et.al., (2009) proved that the use of ampicillin-sulbactam parenteral and oral forms in bacterial infections**.** Ampicillin-sulbactam has a wide range of antibacterial activity that includes Gram-positive and Gram-negative aerobic and anaerobic bacteria. They concluded that ampicillin-sulbactam remains a valuable agent in

the physician's armamentarium in the management of adult and pediatric infections.

Bitsori M et.al.,(2009) investigated resistance against broad-spectrum beta-lactams among uropathogens in children**.** This study was to investigate the prevalence trends and risk factors for urinary tract infection caused by enterobacteriaceae resistant to broad-spectrum beta-lactams in children. In conclusion, our study points to increasing prevalence of enterobacteriaceae uropathogens resistant to broad-spectrum beta-lactams in the community setting, which limits the utility of first-line antibiotics and questions the validity of using prophylaxis after a first urinary tract infection episode.

Farshad .S et. al.,(2009) identified the prevalence of virulence genes of E. coli strains isolated from children with urinary tract infection. Study demonstrated higher prevalence of pyelonephritis in the presence of E. coli virulence genes. Detection of the genes in urine samples may help in the management of urinary tract infection.

Dore.Bergeron.MJ,et al(2009) reported that urinary tract infections in 1- to 3-month-old infants with ambulatory treatment with intravenous antibiotics. Ambulatory treatment of infants 30 to 90 days

of age with febrile urinary tract infections by using short-term, intravenous antibiotic therapy at a day treatment center is feasible.

Chang C.H ,et al,(2008), studied antibiotic resistance patterns of community-acquired urinary tract infections in children with vesicoureteral reflux receiving prophylactic antibiotic therapy. Children receiving cephalosporin prophylaxis are more likely to have extended-spectrum beta-lactamase-producing bacteria or multidrug-resistant uropathogens other than E coli for breakthrough urinary tract infections; therefore, these antibiotics are not appropriate for prophylactic use in patients with vesicoureteral reflux. Co-trimoxazole remains the preferred prophylactic agent for vesicoureteral reflux

Gadanya.MA, et. al.,(2009) investigated an appraisal of current management of childhood urinary tract infections Ampicillin, Cotrimazole and Tetracycline featured as first line antibiotics to treat effectively children with urinary tract infection.

Michael Moffatt. MD et.al.,(2008) performed a methodological review of 14 published clinical trials of short-course (≤4 days) vs conventional (seven to ten days) antibiotic therapy for urinary tract infection in children. They concluded that there is insufficient

evidence to warrant the use of short-course antibiotic therapy for urinary tract infection in children and that a much larger study, with attention to some of the details described, is warranted

Jackowska T et.al., (2008), detected etiology of urinary tract infections and antimicrobial susceptibility studies into the etiology of urinary tract infection and drug susceptibility of the pathogens in hospitalized children could facilitate correct management of patients receiving empirical treatment and prophylaxis of urinary tract infection. They noted decrease in the sensitivity of the most frequent pathogen, Escherichia coli, to aminopenicillins and aminopenicillins combined with beta-lactamase inhibitors.

Patel P S et, al.,(2007) demonstrated modes of administration of antibiotics for symptomatic severe urinary tract infections There is no evidence suggesting that oral antibiotic therapy is less effective for treatment of severe urinary tract infection than parenteral or initial parenteral therapy. The results of this review suggest that the mode of application does not determine therapeutic success

PrajapatiBS, et.al., (2008), described advances in management of urinary tract infections**.** After the diagnosis of urinary tract infection,

its category should be defined. It will guide for proper radio imaging evaluation, choice of antimicrobial agent, duration of treatment, need of chemoprophylaxis etc.

VI.REVEIEW OF LITERATURE RELATED TO PREVENTION OF URINARY TRACT INFECTION IN CHILDREN

Coultlan MG, et.al., (2009) reported whether kidney scarring after urinary tract infections in children can be prevented and to identify the risk factors for developing scars. they identified children in the Northern health region of the UK who had been seen to develop scars, identified as new defects on dimercapto-succinic acid scanning. Being febrile or unwell during a urinary tract infection does not predict the development of scars, but prompt treatment appears to prevent scarring in children with vesicoureteral reflux .

Ferrara P et. al., (2009), examined cranberry juice for the prevention of recurrent urinary tract infections. These data suggest that daily consumption of concentrated cranberry juice can significantly prevent the recurrence of symptomatic urinary tract infections, in children.

Levy I (2009) reviewed that urinary tract infection in preterm infants and the protective role of breastfeeding**.** Urinary tract infection differs between preterm and older infants and children in terms of prevalence, clinical presentation, causative organism, and rate of underlying renal anomalies. The presence of a peripheral intravenous catheter on the day of infection to be significantly associated with urinary tract infection, while breast milk was associated with a lower risk of infection

Mori R,et. Al.,(2009) proved antibiotic prophylaxis for children at risk of developing urinary tract infection results given the lack of evidence on positive benefit of using prophylactic antibiotics for children at risk of developing urinary tract infection, routine use of antibiotics for these children is not recommended.

Nergard CS et.al.,(2009) revealed that cranberries for prevention of recurrent urinary tract infection Some evidence exists on cranberries' preventive effect on recurrent symptomatic urinary tract infections in women. The evidence is inconclusive for children, men and older people (both men and women).Cranberries should not be used during pregnancy and lactation due to lack of safety data.

Further, properly designed studies with standardised products andrelevant outcomes are needed.

WilliamsG ,et al (2009) developed prevention of recurrent urinary tract infection in children**.**The trials of complementary interventions (vitamin A, probiotics, cranberry, nasturtium and horseradish) generally gave favourable results but were not conclusive. Children and families who use these products should be aware that further infections are possible despite their use.

Doganis det al(2008). reported that does early treatment of urinary tract infection prevent renal damage. Early and appropriate treatment of urinary tract infection, especially during the first 24 hours after the onset of symptoms, diminishes the likelihood of renal involvement during the acute phase of the infection but does not prevent scar formation

CHAPTER – III

METHODOLOGY

This chapter deals with the description of different steps which were taken by the investigator for the present study. It includes research design, setting, sampling technique, tools for data collection, pilot study, plan for data analysis.

RESEARCH DESIGN:-

One group pretest and posttest research design was adopted to evaluate the effectiveness of nursing care on children with urinary tract infection.

SETTING:-

The study was conducted in pediatric ward at Melmaruthur Adhiparasakthi Institute of Medical Sciences and research Melmaruvathur, Kanchipuram District.

POPULATION:-

The population of the study comprised of children with urinary tract infection who were admitted in paediatric ward at Melmaruvathur Adhiparasakthi institute of medical sciences research, Melmaruvathur

SAMPLE SIZE:-

Total number of sample was 30 children with urinary tract infection in pediatric ward at Melmaruvathur Adhiparasakthi Institute of medical sciences , Melmaruvathur.

SAMPLING TECHNIQUE:-

Simple random sampling technique was adopted for selection of the children who were diagnosed as urinary tract infection

CRITERIA FOR SAMPLE SELECTION:

INCLUSION CRITERIA

1. Children who were admitted with urinary tract infection in pediatric ward at Melmaruvathur Adhiparasakthi institute of Medical Sciences, Melmaruvathur.
2. Mothers who understood Tamil or English.
3. Mothers who were willing to participate.

EXCLUSION CRITERIA:-

1. The children with urinary tract infection and along with any other systemic problems.
2. Mothers who didn't understand Tamil or English

INSTRUMENT ANDTOOLS OF THE DATA COLLECTION:-

Details of the tool in the study are given below:-

1) Proforma for demographic variables.
2) Ongoing assessment scale.
3) Observation check list.

DATA COLLECTION:-

The study was conducted in Melmaruvathur Adhiparasakthi Institute of Medical Sciences and Research, Melmaruvathur. The data was collected for a period of six weeks by using the prepared tools. The

were developed based on the objectives of the study and through review of literature.

CHAPTER-IV

DATA ANALYSIS AND INTERPRETATION:-

This chapter deals with the description of the respect of pilot study, reliability, validity, scoring interpretation, plan for data analysis and results presentation of findings.

DESCRIPTION OF THE TOOL:-

Details of the tool in the study are given below:-

1) Proforma for demographic variables.

2) Ongoing assessment scale.

3) Observation check list.

SECTION - I PROFORMA FOR DEMOGRAPHIC VARIABLES:-

a) Demographic variables related to child

b) Demographic variables related to family

In this section information on demographic variables related to child such as sex of the child age of the child, nature of

birth, place of birth, immunization status. Demographic variables related to family such as type of family, educational status of mother, working status of mother, family income, family history of urinary tract infection, health information regarding urinary tract infection.

SECTION - II ONGOING ASSESSMENT SCALE:-

This section entails fifteen components regarding the health condition of the children with urinary tract infection. It consists of general appearance of child, temperature of child, pulse rate, respiratory rate, abdominal pain, feeding pattern, vomiting, weight loss, pain during micturation, straining during micturation, urine stream, haematuria, smell of urine, colour of urine, and sleep pattern of child.

Each component carried maximum score of three, minimum score was one and the total number was 45.

Based on the information were classified as follows

<15 - mild health deterioration

15-30 - moderate health deterioration

30-45 - severe health deterioration

After collecting the data, those were analyzed to find out the percentage, mean and standard deviation of scores for children with urinary tract infection.

SECTION – III OBSERVATION CHECK LIST:-

In this section the checklist for nursing care given to the children were included .It consists of vital signs, tepid sponging, maintain hydration status, hot application, maintaince of nutritional status, maintain personal, perineal hygiene, toilet training and voiding habits, health education on urinary tract infection.

REPORT OF THE PILOT STUDY:-

Pilot study was conducted to find out the effectiveness of care for children with urinary tract infection at Melmaruvathur Adhiparasakthi Institute of Medical Sciences, Melmaruvathur for a period of 2 weeks, to find out the feasibility of the study and reliability

of the tools were checked on the basis of the pilot study, the instrument and the interventions were modified and refined the pilot study subjects were excluded from the original study.

The pre assessment was done by using the planned ongoing assessment score and the nursing care was given by using rating scale for the children with urinary tract infection after 7days the children status was evaluated and results were analyzed based on the score.

The data was analyzed by using Paired ‘t’ test

Result of the study was:

Calculated value was: 14.52

Tabulated value was: 3.462

Calculated value was more than the tabulated value so effectiveness of nursing care on children with urinary tract infection was significant.

RELIABILITY:-

The assessment of tool was developed by the investigator based on the review of literature, which was evaluated and accepted by experts of the research committee that the content of the tool was reliable.

INFORMED CONSENT:-

The research committee prior to the pilot study approved the research proposal. Permission was obtained from the concerned authority in Melmaruvathur Adhiparasakthi Institute of Medical Sciences and Research, Melmaruvathur Kanchipuram District. The oral consent from each urinary tract infection children's mother was obtained before starting the data collection. Assurance was given to the mothers that confidentially would be maintained.

VALIDITY:-

The content validity of the tool was established on the basis of opinion of two medical experts from the field of child health nursing. Suggestions from the experts were considered and the tool was modified as per the concerns of all the experts and the tools were finalized.

DATA COLLECTION PROCEDURE:-

The investigator introduced herself to mother, children and had developed a good communication with them and the data were collected from the parents of the children. Then the pre- assessment was done on the first day of admission.

SCORING INTERPRETATION:-

The scores were interpretated as follows:-

The obtained data score was interpreted by the following procedure

$$\text{Scoring interpretation} = \frac{\text{obtained score}}{\text{Total score}} \times 100$$

Maximum score = 45

Minimum score = 15

The data was collected from the mother, who were co-operative, who accepted to take their children as the subject of the study .the data collection was done for 10 minutes on the assessment day after getting the demographic data from the mother, assessment of child was done with the help of prepared tools. Nursing interventions were carried out from 8 am to 5 pm on all days. During the 5^{th} day, the effectiveness of the nursing care with the ongoing assessment tool was evaluated .

Based on the information data were classified as follow:-

Less than 50%	__	mild health deterioration
51 - 76%	__	moderate health deterioration
76 -100%	__	severe health deterioration

Data analysis plan and results:-

The descriptive statistical analysis method was used to find out the percentage mean, standard deviation of the score. The paired `t' test and correlation were adapted and interpreted with each and every score

STATISTICAL METHOD:

S. NO	DATA ANALYSIS	METHOD	REMARKS
1.	Descriptive analysis	• The total number of score, percentage, mean, standard deviation of the score.	Assess the demographic variables & to assess the effectiveness of nursing care on children with urinary tract infection.
2.	Inferential analysis	• Paired `t' test	To compare the health condition of the children on the first and fifth day
3.	Inferential analysis	• Cor relation	To find out the correlation between the demographic variables and the effectiveness of nursing care on children with urinary tract infection

Section – A

Frequency and percentage distribution of demographic variables of children with urinary tract infection.

Section – B

Frequency and percentage distribution of assessment and evaluation score of children with urinary tract infection.

Section – C

Mean and Standard Deviation of Assessment and evaluation score for nursing care of children with urinary tract infection**.**

Section – D

Improvement score of mean and standard deviation of assessment and evaluative score and effectiveness of nursing care on children with urinary tract infection.

Section – E

Correlation between demographic variables and effectiveness of nursing care on children with urinary tract infection.

SECTION - A

Table - 4.1 Frequencies and percentage distribution demographic variables of the children with urinary tract infection N = 30

s.no	Demographic variables	Frequency	Percentage
1.	**Sex of child** a)Female b)Male	 20 10	 66.67 33.33
2.	**Age of the child** a)0-3 years b) 3-6 years c)6-9 years d)9-12 years	 9 11 7 3	 30 36.67 23.33 10
3.	**Nature of birth** a)normal b)caesarian c)assisted delivery	 10 12 8	 33.33 40 26.67
4.	**Place of birth** a)hospital b)home	 25 5	 83.33 16.67
5.	**Immunization status** a)Completed for age b)Incomplete for age c)Non immunized	 15 10 5	 50 33.33 16.67
6.	**Type of family** a)Joint family b) Nuclear	 19 11	 63.33 36.67
7.	**Educational status of mother** a)Illiterate b)Primary c)Secondary d)Higher secondary&above	 5 9 12 4	 16.67 30 40 13.33
8.	**Working status of mother** a)Home maker b)Self employed c)Govt/private	 18 4 8	 60 13.33 26.67
9.	**Family income** a)Below Rs 1000/month bRs-1001-3000/month c)Rs3001-and above	 8 12 10	 26.67 40 33.33
10.	**Family history of urinary tract infection** a)yes b)no	 17 13	 56.67 43.33
11.	**Health information through** H)mass media b)health personnel c)friends relatives	 12 12 6	 40 40 20

Table 4.1 reveals that out of 30 children 10(33.33%) were males, 20(66.67%) were females. Regarding age of children three (10%) were in 6-12 years, 11(36.67) were in 3-6 years. Regarding nature of birth eight (26.67%) had assisted delivery, 12(40%) had caesarian delivery. Regarding place of birth five (16.67%) were born in home, 25(83.33%) were born in hospital. About immunization status 15(50%) were completed immunization up to the age, five (16.67%) were nonimmunized .Regarding type of family 11(36.67%) were nuclear family, 19(63.33%) were joint family. Regarding educational status of mother 12(40%) had higher school level, higher secondary and above four (13.33%).Regarding working status of mother 18(60%) were home maker, four (13.33%) were self employed. Regarding family income eight (26.67%) earning below Rs.1000/- month, 12(40%) earning Rs.1001-3000/-per month. Regarding family history of urinary tract infection 17(56.67%) had history of urinary tract infection in their family 13(43.33%) have no history of urinary tract infection . Regarding health information 12(40%) received through mass media, 12(40%) received through health personnel, six (20%) received through relatives/friends.

SECTION – B

Table 4.2 Frequency and percentage distribution of assessment and evaluation score for children with urinary tract infection N=30

S.NO	HEALTH STATUS	**Mild health deterioration**		**Moderate health deterioration**		**Severe health deterioration**	
		No	%	No	%	No	%
1.	**Assessment day**	-	-	-	-	30	100
2.	**Evaluation day**	27	90	3	10	-	-

Table 4.2 shows the comparison of frequency and percentage between assessment and evaluation scores. On the assessment day 30 (100%) children had severe health deterioration and on evaluation day 27 (90%) were progressed to mild health deterioration, three (10%) were progressed to moderate health deterioration. It shows the nursing care was effective for the children with urinary tract infection.

SECTION – C

Table 4.3 Mean and Standard Deviation of Assessment and evaluation score for nursing care of children with urinary tract infection

N = 30

S.No	Health status	Mean	Standard deviation	Confidential interval
1.	Assessment score	40 .23	1.6	40.01- 41.45
2.	Evaluation score	16.167	2.4	15.13 -17.20

Table 4.3 reveals the comparison of mean and standard deviation between assessment and evaluation scores. Among 30 children the over all mean was 40.23 on the assessment day with the standard deviation of 1.6. On evaluation day mean was 16 .167 with the standard deviation of 2.4.it was shows that nursing of children with urinary tract infection was effective.

SECTION - D

Table 4.4 Improvement score of mean and standard deviation of assessment and evaluative score and effectiveness of nursing care on children with urinary tract infection. N=30

Health status	Mean	Standard deviation	paired `t' value	T-value	confidential interval
Improvement score	25.9	2.57	55.22	2.462	24.74 -27.06

Table 4.4 reveals improvement scores of mean and standard deviation of effectiveness of nursing on children with urinary tract infection. Among 30 urinary tract infection children over all mean was 25.9 with the standard deviation of 2.57,the paired `t' value of 55.22 which was statistically significant at $p<0.001$ level and the calculated value was greater than the tabulated value at the 0.01 level of significance. It implies that the nursing care provided by the investigator was effective and showed improvement in health status of children with urinary tract infection.

SECTION - E

Table 4.4 correlation of selected demographic variables with effectiveness of nursing care on children with urinary tract infection n =30

s.no	Demographic variables	Assessment				Evaluation				
		Moderate		Severe		Mild		Moderate		r
		no	%	no	%	no	%	no	%	
1.	**Sex**									
	a) Female	-	-	20	66.67	19	63.33	1	3.33	0.5
	b) Male	-	-	10	33.33	8	26.67	2	6.67	S
2.	**Age of the child**									
	a)0-3 years	-	-	9	30	7	23.34	2	6.67	
	b) 3-6 years	-	-	11	36.67	10	33.33	1	3.33	0.45
	c)6-9 years	-	-	7	36.67	7	36.67	-	-	S
	d)9-12 years	-	-	3	10	3	10	-	-	
3.	**Place of birth**									
	a)hospital	-	-	25	83.33	23	76.67	2	6.67	0.37
	b)home	-	-	5	16.67	7	13.33	1	3.33	S
4.	**Immunization status**									
	a)Completed for age	-	-	15	50	13	43.33	2	6.67	
	b)In completed for age	-	-	10	33.33	9	30	1	3.33	0.25
	c)Non immunized	-	-	5	16.67	5	16.67	-	-	S
5.	**Type of family**									
	a)joint family	-	-	19	63.33	16	53.33	3	10	0.20
	b) nuclear	-	-	11	36.67	11	36.67	-	-	S
6.	**Nature of birth**									
	a)normal	-	-		33.33	8	26.67	2	6.67	0.42
	b)caesarian	-	-		40	12	40	-	-	
	c)assisted delivery	-	-		26.67	7	23.33	1	3.33	NS
7.	**Educational status of mother**									
	a)illiterate	-	-	5	16.67	3	10	2	6.67	0.50
	b)primary	-	-	9	30	8	26.67	1	3.33	
	c)secondary	-	-	12	40	12	40	-	-	S
	d)higher secondary&above	-	-	4	13.33	4	13.33	-	-	
8.	**Working status of mother**									0.52
	a)Home maker	-	-	18	60	16	53.33	2	6.67	
	b)Self employed	-	-	4	13.33	3	10	1	3.33	NS
	c)Govt/private	-	-	8	26.67	8	26.67	-	-	
9.	**Family income**									
	a)Below Rs 1000/month	-	-	8	26.67	7	23.33	1	3.33	0.32
	bRs-1001-3000/month	-	-	12	40	11	36.67	1	3.33	NS
	c)Rs3001-and above	-	-	10	33.33	9	30	1	3.33	
10.	**Family history of urinary tract infection**									0.53
	a)yes	-	-	17	56.67	16	53.33	1	3.33	
	b)no	-	-	13	43.33	11	36.67	2	6.67	NS

11.	**Health information through** H)mass media b)health personnel c)friends relatives	**-** **-** **-**	**-** **-** **-**	**12** **12** **6**	**40** **40** **20**	**11** **10** **6**	**36.67** **33.33** **20**	**1** **2** **-**	**3.33** **6.67** **-**	**0.23** **NS**

N – significant **P>0.01**

NS – non significant

Table 4.5 shows that statistically there is a significant relationship between the nursing care and age of the child of nursing care and the sex of the child , age of the child, place of birth, immunization status, type of family ,education status of mother.

Statistically there is no significant relationship between nature of birth, working status of mother, family income, family history of urinary tract infection and health information

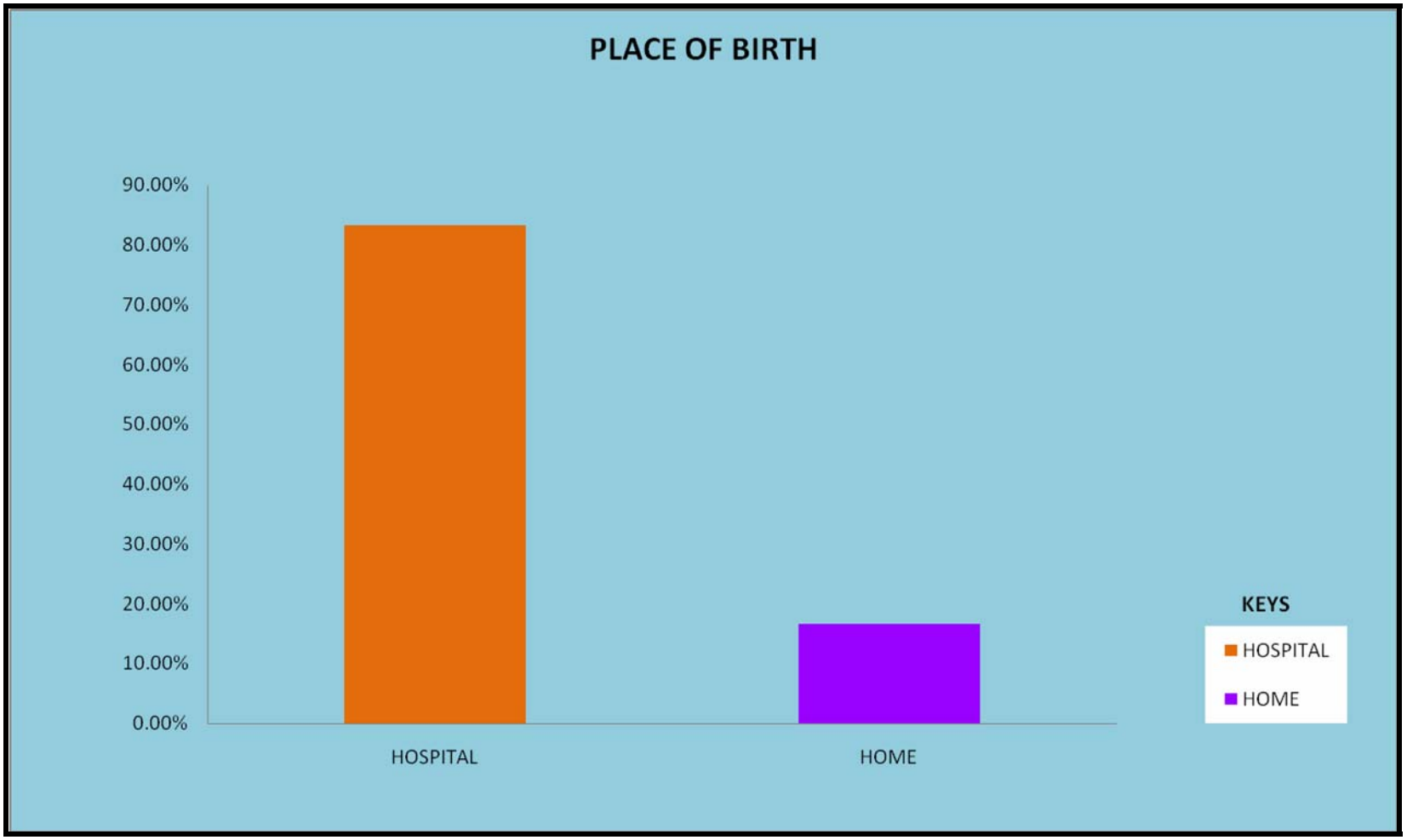


Figure. 4.3: PERCENTAGE DISTRIBUTION OF DEMOGRAPHIC VARIABLE BASED ON PLACE OF BIRTH

V

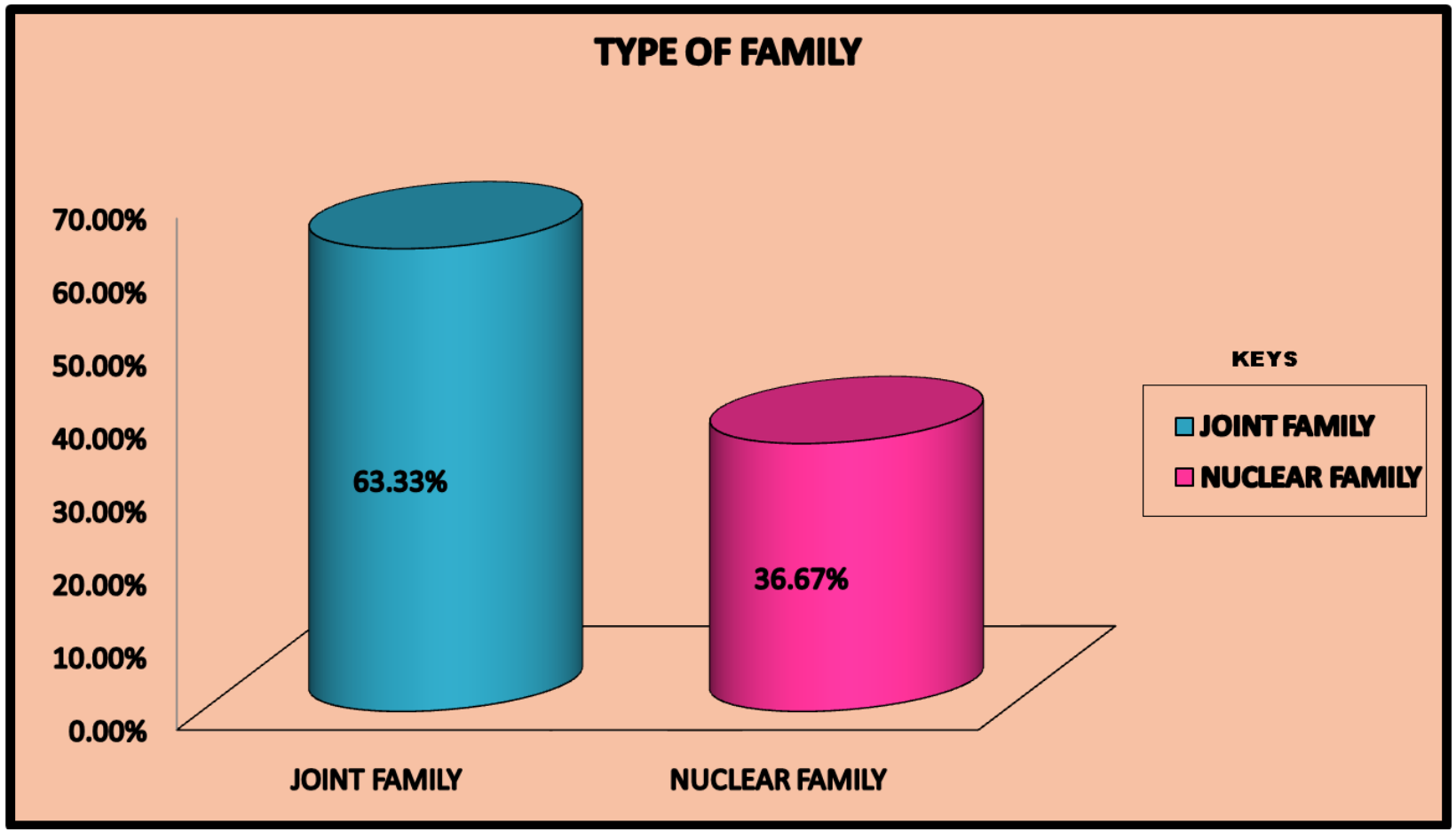


Figure. 4.3: PERCENTAGE DISTRIBUTION OF DEMOGRAPHIC VARIABLE BASED ON TYPE OF FAMLIY

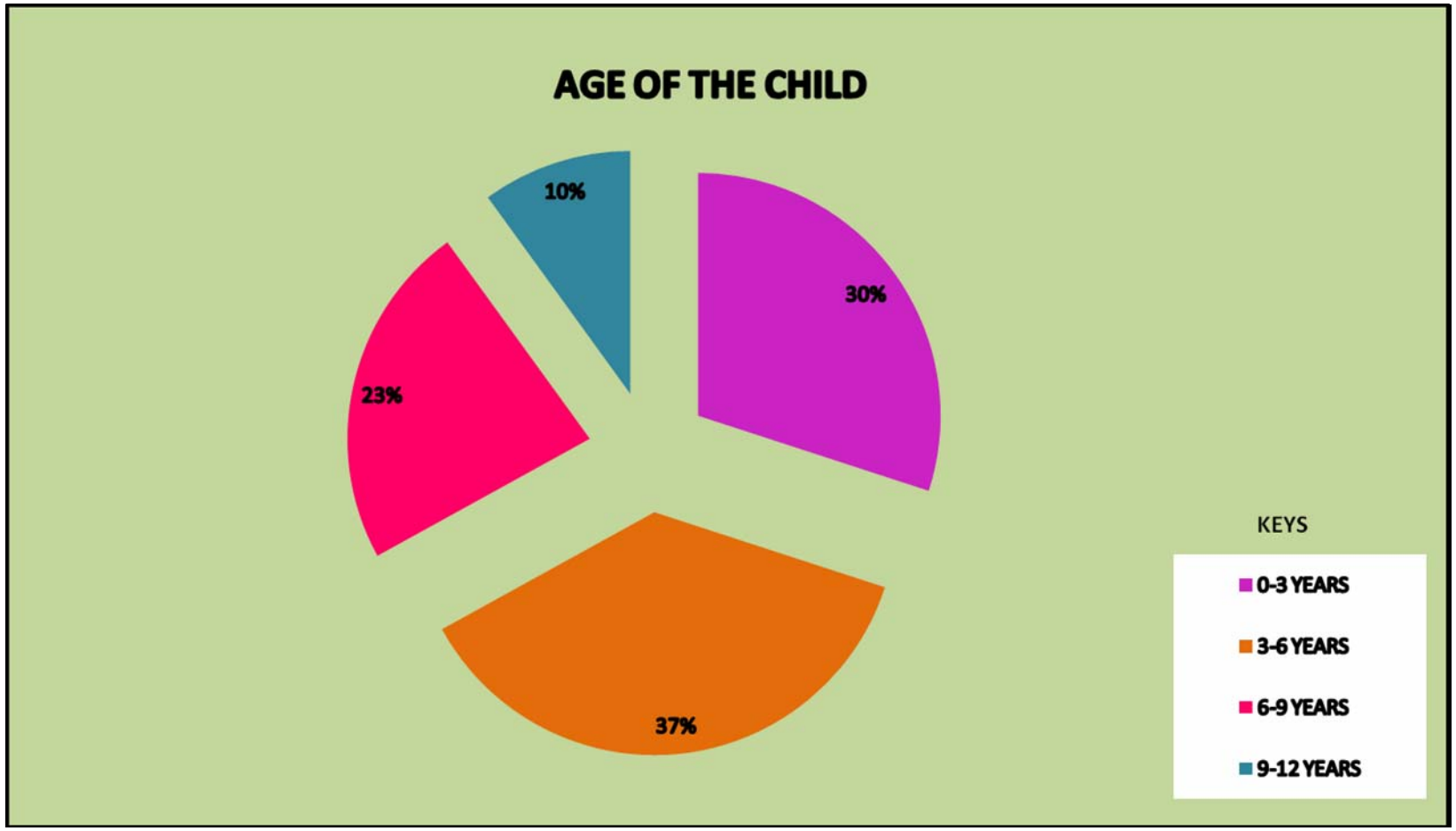


Figure. 4.2: PERCENTAGE DISTRIBUTION OF DEMOGRAPHIC VARIABLE BASED ON AGE OF THE CHILD

III

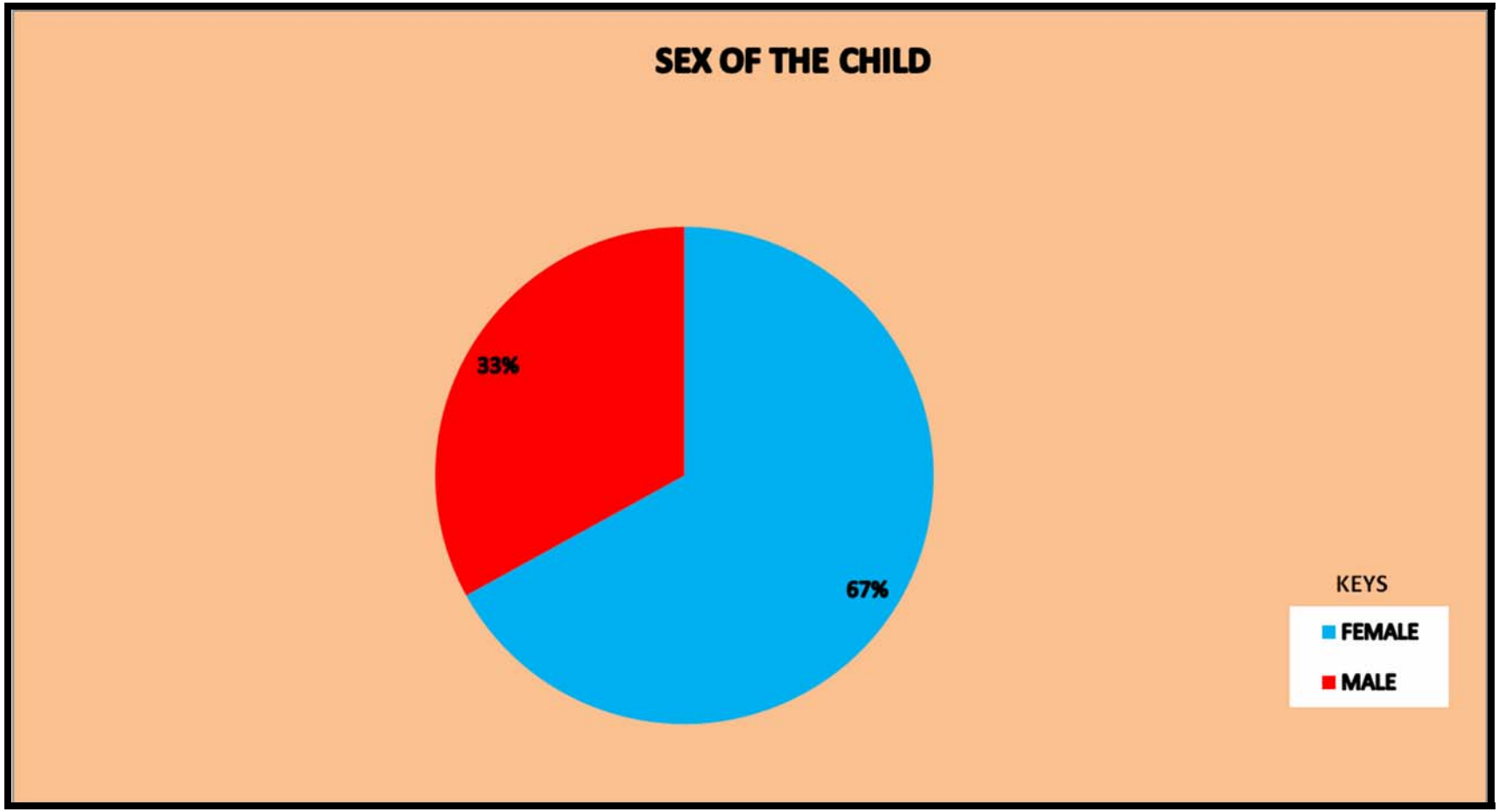


Figure. 4.1: PERCENTAGE DISTRIBUTION OF DEMOGRAPHIC VARIABLE BASED ON SEX OF THE CHILD

II

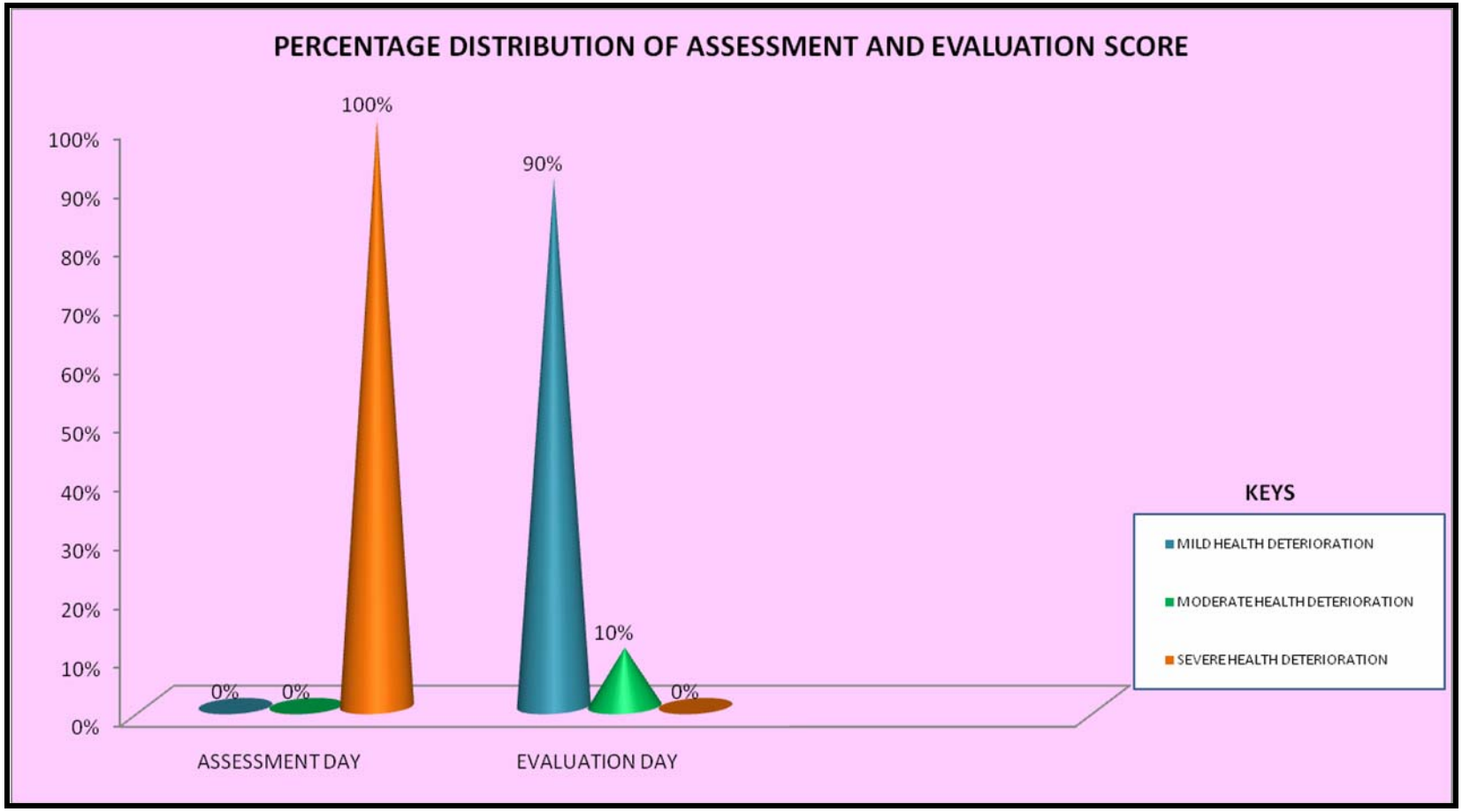


Figure 4.5: PERCENTAGE DISTRIBUTION OF ASSESSMENT AND EVALUATION SCORE OF CHILDREN WITH URINARY TRACT INFECTION

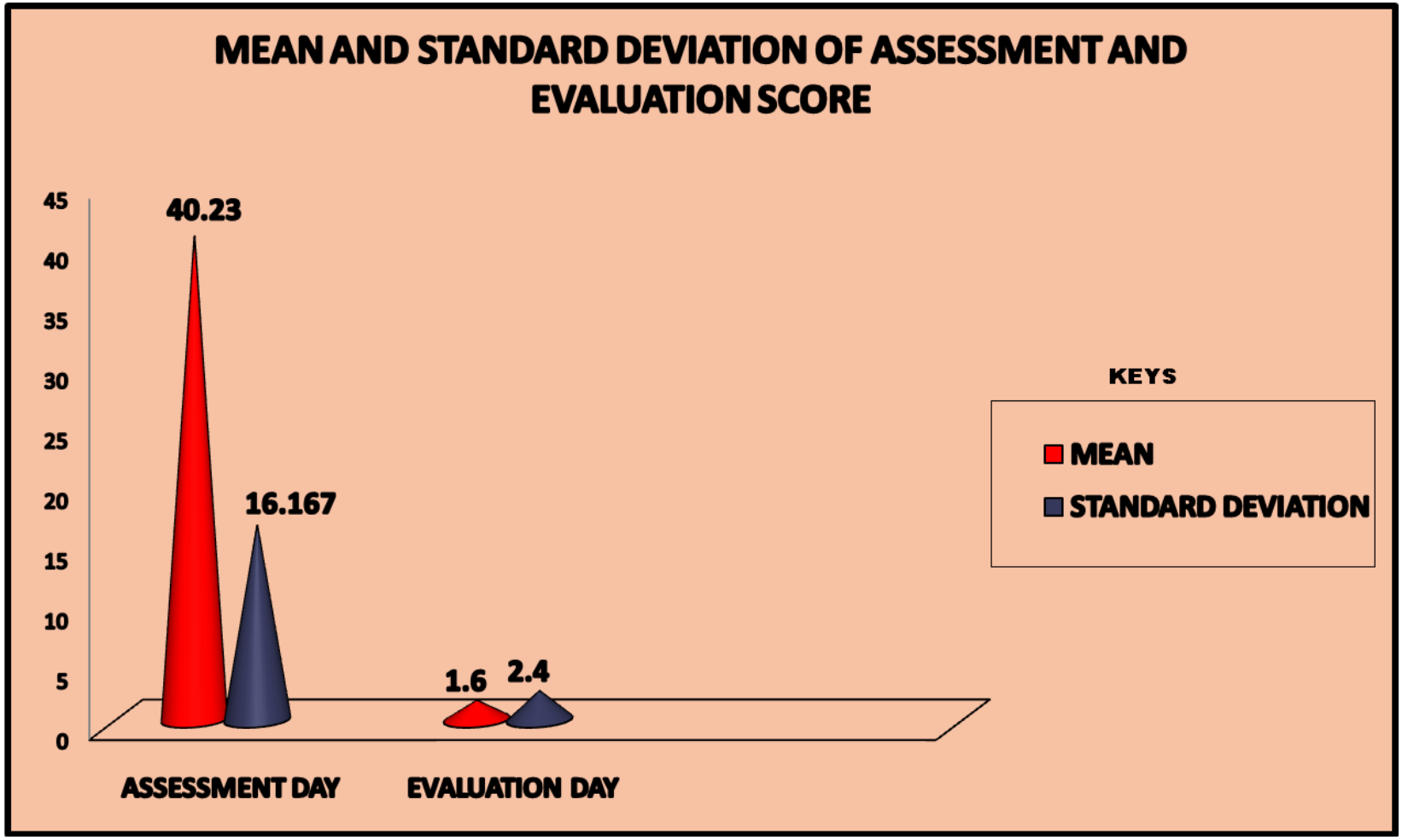
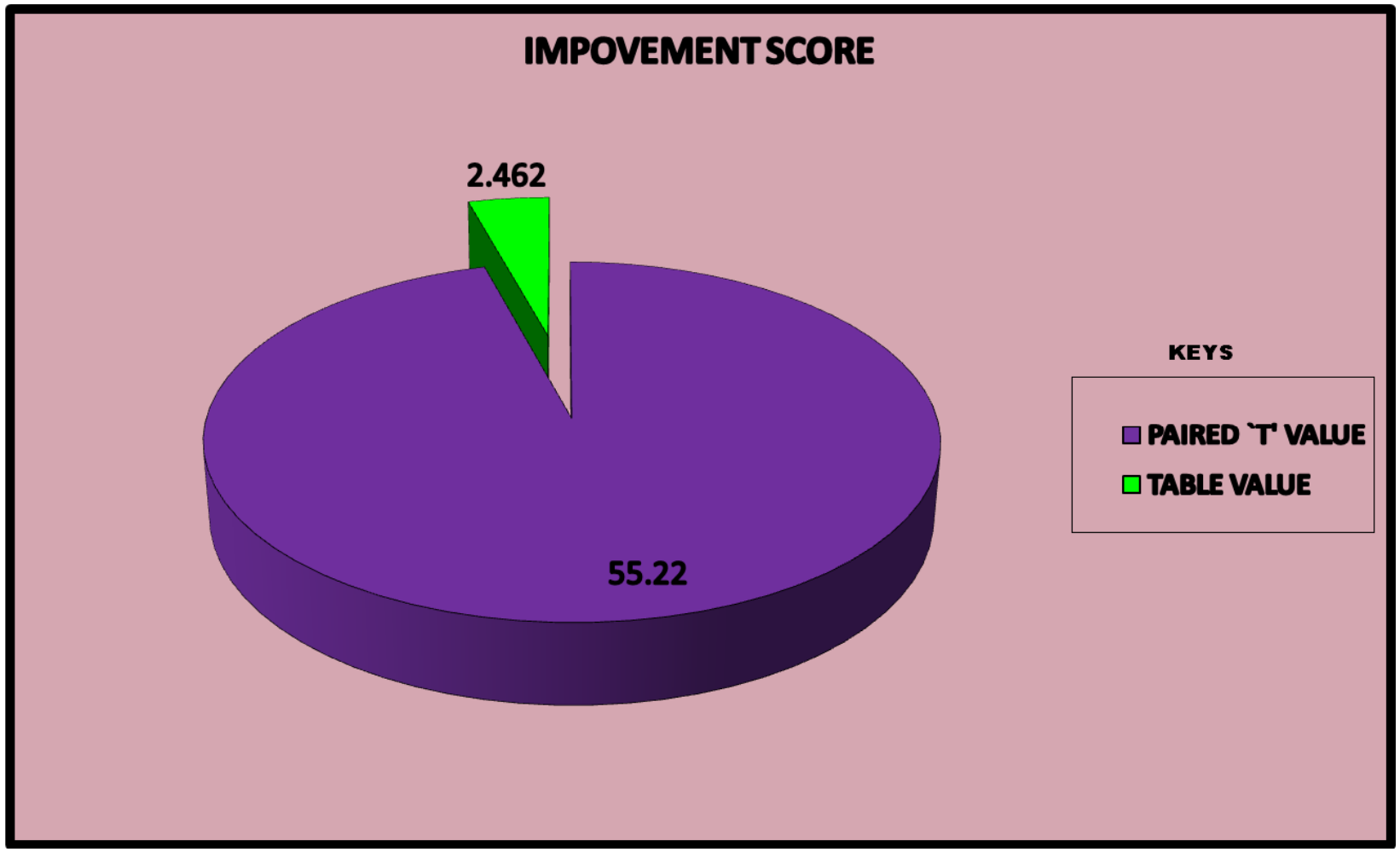
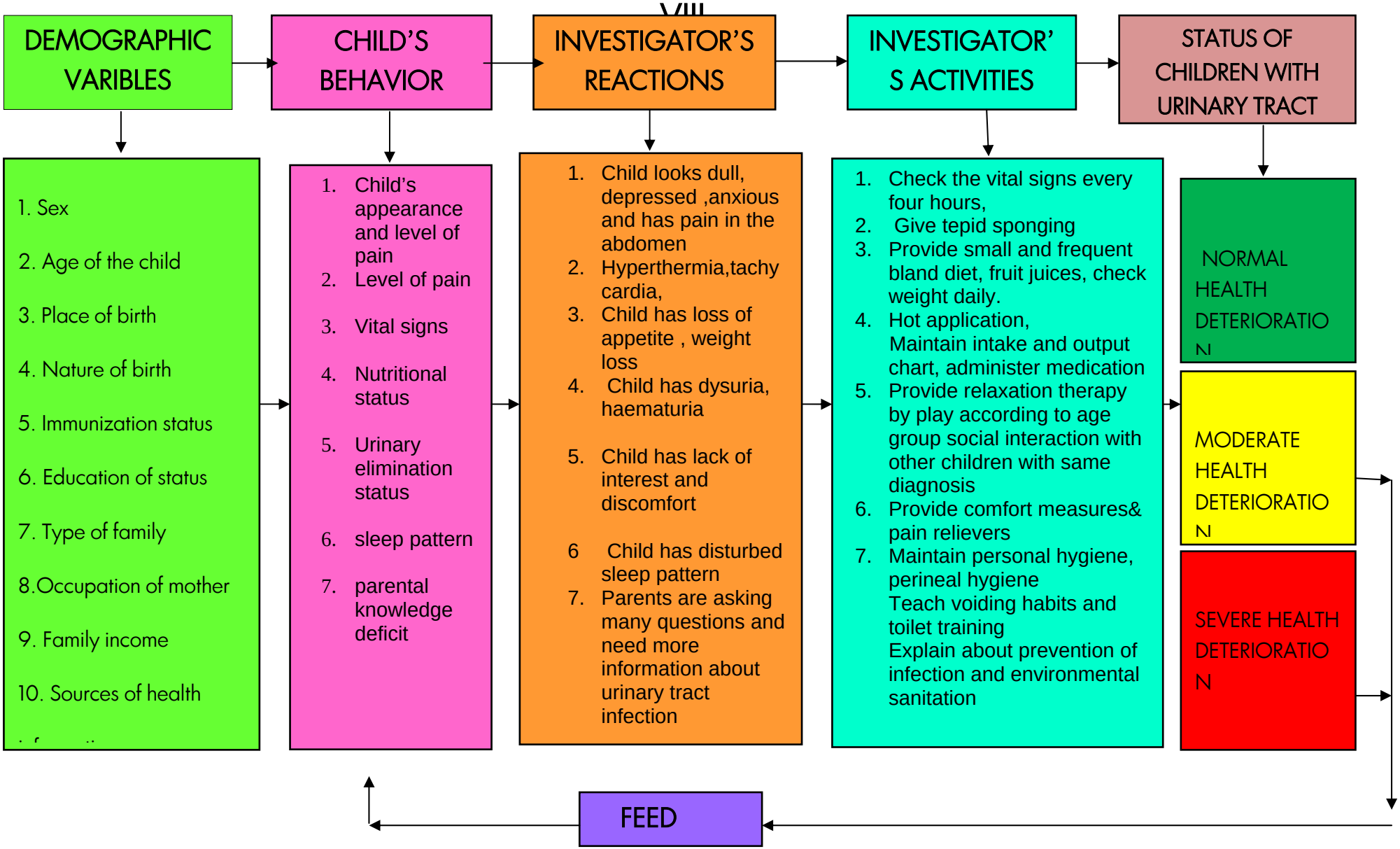


Figure 4.6: MEAN AND STANDARD DEVIATION OF ASSESSMENT AND EVALUATION SCORE OF CHILDREN WITH URINARY TRACT INFECTION



COMPARISION OF PAIRED `T` VALUE AND TABLE VALUE


DEMOGRAPHIC VARIBLES
CHILD'S BEHAVIOR
INVESTIGATOR'S REACTIONS
INVESTIGATOR' S ACTIVITIES
STATUS OF CHILDREN WITH URINARY TRACT
1. Sex
2. Age of the child
3. Place of birth
4. Nature of birth
5. Immunization status
6. Education of status
7. Type of family
8.Occupation of mother
9. Family income
10. Sources of health
1. Child's appearance and level of pain
2. Level of pain
3. Vital signs
4. Nutritional status
5. Urinary elimination status
6. sleep pattern
7. parental knowledge deficit
1. Child looks dull, depressed ,anxious and has pain in the abdomen
2. Hyperthermia,tachy cardia,
3. Child has loss of appetite , weight loss
4. Child has dysuria, haematuria
5. Child has lack of interest and discomfort
6 Child has disturbed sleep pattern
7. Parents are asking many questions and need more information about urinary tract infection
1. Check the vital signs every four hours,
2. Give tepid sponging
3. Provide small and frequent bland diet, fruit juices, check weight daily.
4. Hot application, Maintain intake and output chart, administer medication
5. Provide relaxation therapy by play according to age group social interaction with other children with same diagnosis
6. Provide comfort measures& pain relievers
7. Maintain personal hygiene, perineal hygiene Teach voiding habits and toilet training Explain about prevention of infection and environmental sanitation
NORMAL HEALTH DETERIORATIO N
MODERATE HEALTH DETERIORATIO N
SEVERE HEALTH DETERIORATIO N
FEED

ORLANDO'S THEORY OF DELIBERATE NURSING PROCESS (1999)

I

CHAPTER –V

RESULTS AND DISCUSSION

The study was conducted to evaluate the effectiveness of nursing care on children with urinary tract infection. A total of 30 samples were selected for the study. The ongoing assessment tool was designed and nursing care was given to 30 children with urinary tract infection.

- **The first objective was to assess the health status of the children with urinary tract infection**.

Table 4.2 shows the comparison of frequency and percentage between assessment and evaluation scores. On the assessment day 30 (100%) children had severe health deterioration. Among 30 children the over all mean was 40.23 with the standard deviation of 1.6.

- **The second objective was to evaluate the effectiveness of nursing care on children with urinary tract infection**

Table 4.2 reveals evaluation day 27 (90%) were progressed to mild health deterioration, three (10%) were progressed to moderate health deterioration.

Table4.4 reveals improvement scores of mean and standard deviation of effectiveness of nursing care on children with urinary tract infection. Among 30 urinary tract infection children over all mean was 25.9 with standard deviation 2.57,the paired `t'value of 55.22.on evaluation day mean was 16.167 with the standard deviation of 2.4.which was statistically significant at p< 0.001 level and the calculated vale was greater than the tabulated value at the 0.01 level of significance. It implies that the nursing care provided by the investigator was effective and showed improvement in health status of children with urinary tract infection.

- **The third objective was to find out the association between selected demographic variables with the effectiveness of nursing care on children with urinary tract infection**

Table 4.5 shows that statistically there was a significant relationship between the nursing care and age of the child of nursing

care and the sex of the child , age of the child, place of birth, immunization status, type of family ,education status of mother.

Statistically there was no significant relationship between nature of birth, working status of mother, family income, family history of urinary tract infection, health information.

CHAPTER – VI

SUMMARY AND CONCLUSION

This chapter sums up the outcome of the study conducted in Melmaruvathur Adhiparasakthi Institute of Medical Sciences

This study was conducted to evaluate the effectiveness of nursing care on children with urinary tract infection. Evaluative research design was adopted to evaluate the nursing care. Individualized nursing care was provided to children those who met the inclusion criteria. The convenient sampling study was administered and sample size determined as 30 (thirty).

Ongoing assessment was done with the rating scale prepared to analyze the variation of health status and the standard nursing care plan was prepared to render care as vital signs, tepid sponging, maintain hydration status, hot application, maintenance of nutritional status, maintain personal, perineal hygiene, toilet training and voiding habits, health education on urinary tract infection The progress in urinary tract infection among children reveals that among 30 children30 (100%) had severe health deterioration on assessment day. Among 30 children 27 (90%) had mild health deterioration, three

(10%) had moderate health deterioration and on evaluation day. It shows the nursing care was effective for the children with urinary tract infection.

NURSING IMPLICATION:

The holistic nursing care be provided for an individual, family and Community to achieve the optimal health level.

- The study helped, the mothers and family members of the children to get awareness about urinary tract infection.

- The present study could help the nurses and the mothers of the children the acquire better knowledge about urinary tract infection.

- The study could help to gain knowledge on prevention and home management of urinary tract infection.

- The Study also could develop knowledge and skills in handling the child with severe and moderate degree of urinary tract infection.

Nursing practice:

- The Nurse should be aware management of urinary tract infection should create an awareness of it among mothers.
- Nurses must have special training in dealing with children with urinary tract infection monitoring growth and development, advice on diet for urinary tract infection.
- The nurses must know the complication of urinary tract infection .
- The nurse should provide health education on prevention, diet planning and proper follow up care on urinary tract infection to the parents and family members of the children.

Nursing education:

- The developed module should be used to teach nurses in various health settings regarding nursing assessment diagnosis and intervention of children with urinary tract infection.
- The nurse educator should provide instruction regarding care of children with urinary tract infection should emphasis on the development of desirable attitudes and skills to practice in all health care settings.

- The nurse educator should adopt a new technological teaching learning method in order to promote the nursing skill sand attitudes among nursing students and nurses to mould their behavior for recent trends.

Nursing administration:

- The nurse administrator should understand the health needs of the children in the society mainly in rural areas. This helps the nurse administrator to find out high risk cases of failure to thrive.

- The health care system should provide an in – service education to nurses and promote the quality care to the poor socio economic children in the society.

- The nurse administrator should have a standard policy, nursing procedure protocol should implement proper health teaching programm regarding failure to thrive

RECOMMENDATIONS

1. A comparative study can also be carried out between rural and urban children with urinary tract infection.
2. A comparative study can be done on different age group and between male and female.
3. A similar study can be conducted with large sample size.
4. A descriptive study can be done on assessment of knowledge, attitude and practice of children with urinary tract infection.

BIBLIOGRAPHY

1. Nelson. A. (1990), **"*ESSENTIAL OF PAEDIATRICS*,"** 15th Edition, W.B. Saunders Company, Philadelphia.

2. Wacheter. H.E., (1983), **"*NURSING CARE OF CHILDREN*",** 10th Edition, Lippincott, Philadelphia

3. Christina (1996). **"*INTRODUCTION TO METERNAL AND CHILDREN HEALTH NURSING*"** 1st Edition, Philadelpbhia.

4. Hull.C. (1997), **"*ESSENTIALS OF PAEDIATRICS*,"** 4th Edution, curchil Livingstone, Edinburgh.

5. Joy.R. (1991), **"*MATERNAL AND CHILDREN HEALTH NURSING MOSBY YEAR BOOK",*** Philadelphia

6. Gupta, S. (1998), **"*THE SHORT TEXT BOOK OF PAEDIATRICS",*** 9th Edition Jaypee Brothers, New Delhi.

7. William.M. (1998), **"*MOTHER AND CHILDREN HEALTH CARE",*** 1st Edition, The English Language Books Society.

8. Adela. P. (1999) **"*CHILD HEALTH NURSING*"** 1st edition, lippincott company, phildelphia.

9. Bowden, M. (1998), ***"CHILDREN AND THEIR FAMILIES",*** 1st Edition, W.B.Sanuders Company, Philadelphia.

10. Whaley, F.S. & Wong's L.P. (1999), **"*NURSING CARE OF INFANTS AND CHILDREN",*** 6th Edition, Mosby Publication, Missouri.

11. Denise.F, (1999), **"*NURSING RESEARCH, PRINCIPALS AND METHODS "*,** 6th Edition, Lippincott Company, Philadelphia.

12. Aravind (2000) ***"CLINICAL METHODS IN PAEDIATRICS***" 1st edtition Jaypeee publication, New Delhi.

13. Behramn. E.R. et.al., (2000) **" *TEXT BOOK OF PAEDIATRICS*",** 15th Edition, Prism Books Pvt. Ltd., Bangalore.

14. Achar, S (2000) **"*TEXT BOOK OF PAEDIATRICS*"** 6th Edition, Orient Longman, Chennai.

15. Nirman Bhavan (2002), **"*TECHNICAL GUIDANCE FOR URINARY TRACT INFECTIONCONTROL,"*** Central Tuberculosis division, New Delhi.

16. Wong's L.P. (2001), ***"ESSENTIAL OF PAEDIATRIC NURSING",*** 6th Edition, Mosby Publication, Missouri. Abd. Ellatif,F. (2002) " Risk Factors of urinary tract infection among children", Journal of Egypt Public Health Association.

17. Alligard, M.R (2002) ***"NURSING THEORISTS AND THEIR WORK"*****,** 5th Edition, Mosby company.

18. United Nations integrated child emergency fund (2002), ***"PREVENTION OF CHILDHOOD AND MOTHERHOOD ILLNESS,"*** UNICEF, New Delhi.

19. Dawn, C.S. (2003), "***TEXT BOOK OF OBSTERTRICS NEONATOLOGY AND REPRODUCTIVE AND CHILDREN HEALTH EDUCATION",*** 16th Edition, Indian College of maternal Health Publication, Calcutta.

20. Mahajan.R (2003), ***"TEXT BOOK OF PREVENTIVE AND SOCIAL MEDICINE",*** 3rd Edition, Jaypee Brothers, New Delhi.

21. Broadribb's S. (2003), ***"INTRODUCTORY PAEDIATRIC NURSING"*** 6th Edition, Lippincott Publication, Philadelphia.

22. Dutta, D.K. (2006*), **"REPRODUCTIVE AND CHILDREN HEALTH CARE"*****,** 1st Edition, Jaypeee Publication, Philadelphia.

23. UNICEF (2004), **"*FACTS OF LIFE – COMMUNICATING CHALLENGE",*** Indian Edition, New Delhi.

24. UNICEF (2008*), **"FACTS ON IMMUNIZATION"*****,** New Delhi.

JOURNAL REFERENCE

1. RASHI, et al (2009)., ***"CHILD DEVELOPMENT; CHILD HEALTH; MEDINEWS, JULY 2008*.**

2. CRAIG, et al (2009*), 'UROLOGY IN CHILDREN', IAJCPS, July 2007.*

3. BETTIS.D.B. (2009), ***'TREATMENT OF SYSTEMIC INFECTIONS, EARLY INTERVENTION.***

4. SHAMINI, et al (2008) ***URINARY TRACT INFECTION AMONG EARLY INFANTS, IAJCPS, January 2007.***

5. WORLD HEALTH ORGANISATION: (2008*), "PARENT CHILD RELATIONSHIP JUNE 2006.*

6. HIDE (2007), **"*PARENT COUNSELING FOR URINARY TRACT INFECTION JULY 2005.***

7. RULTER, (2007), **"*INTERVENTION FOR LOWER URINARY TRACT INFECTION " BRITISH MEDICAL JOURNAL, MAY 2005.***

8. SKINOGLU (2005), **"*VESICOURETHERALRELFLEX AND URINARY TRACT INFECTION INFECTION" JOURNAL OF PEDIATRICS VOLUME 87.***

APPENDIX - I

SECTION-I

DEMOGRAPHIC DATA RELATED TO CHILD:-

1) Sex

a) Male ☐

b) Female ☐

2) Age of child

a) 0-3 yrs ☐

b) 3-6yrs ☐

c) 6-9yrs ☐

d) 9-12yrs ☐

3) Nature of birth

a) Normal ☐

b) Caesarian ☐

c) Assisted delivery ☐

4) Place of birth

a) Hospital ☐

b) Home ☐

5) Immunization status

a) Complete for age ☐

b) Incomplete for age ☐

c) Non-immunized ☐

DEMOGRAPHIC DATA RELATED TO FAMILY:-

1) Type of family

a) Joint family ☐

b) Nuclear ☐

2) Educational status of mother

a) Illiterate ☐

b) Primary school ☐

c) High school ☐

d) Higher secondary &above ☐

3) Working status of mother

a) Home maker ☐

b) Self employed ☐

c) Government/private ☐

4) Family income

a) Below Rs-1000/month ☐

b) Rs-1001-3000/month ☐

c) Rs-3001and above ☐

5) Family history of urinary tract infection

a) Yes ☐

b) No ☐

6) Health information through

a) Mass media ☐

b) Health personnel ☐

c) Friends& relatives ☐

APPENDIX-II

SECTION -II

ONGOING ASSESSMENT TOOL FOR CHILD WITH URINARY TRACT INFECTION

S.NO	ASSESSMENT	DAYS				
		1	2	3	4	5
1.	General appearance a) Active (1) b) Lethargy (2) c) Very restless (3)					
2.	Temperature a) Normal (1) b) 98.8°F-100°F (2) c) >100°F (3)					
3.						
4.	Pulse rate a) Normal (1) b) 80-100/bpm (2) c) >100/bpm (3)					
5.						
6.	Respiratory rate a) Normal (1) b) 26-30per min (2) c) Above 30 per min (3)					

7. 8.	Abdominal pain a) No pain (1) b) Moderate pain (2) c) Severe pain (3)					
9.	Feeding pattern a) normal (1) b) Poor feeding (2) c) Inability to feed (3)					
10. 11.	Vomiting a) No vomiting (1) b) After taking food (2) c) Extreme (3)					
12.	weight loss a) no weight loss (1) b) 1 to 2kg (2) c) 3 to 4 kg (3)					
13. 14.	Pain during micturation a) No pain (1) b) Moderate pain (2) c) Severe pain (3)					
	Straining during micturation					

15.	a) No straining during micturation (1) b) Straining during dribbling (2) c) Severe straining during micturation (3) **Urine stream** a) Normal (1) b) Dribbling (2) c) Retention (3) **Heamaturia** a) No heamaturia (1) b) Few blood cells in urine (2) c) More blood cells in urine (3) **Smell of urine** a) Normal (1) b) Fruity smell (2) c) Foul (3) **Colour of urine** a) Normal (1) b) Yellow colour (2) c) Chocolate colour (3) **Sleep pattern** a) Normal (1)					

	b) Sleep disturbance (2) c) Irritable & cry (3)					

APPENDIX-III

CHECKLIST FOR NURSING CARE OF THE CHILD WITH URINARY TRACT INFECTION

S.NO		DAYS				
		1	2	3	4	5

	NURSING CARE					
1.	VITAL SIGNS					
2.	TEPID SPONGING					
3.	MAINTAIN HYDRATION STATUS					
4.	HOT APPLICATION					
5.	ADMINSTRING MEDICATION					
6.	MAINTAINCE OF NUTRITIONAL STATUS					
7.	MAITAIN PERSONAL, PERINEAL					
8.	HYGINE					
9.	TEACHING TOILET TRAINING AND VOIDING HABITS					
	HEALTH EDUCATION ON PREVENTION OF URINARY TRACT INFECTION					

APPENDIX – IV

NURSING DIAGNOSIS

1) Altered body temperature (hyperthermia) related to inflammatory response to infection

2) Pain(abdominal pain, painful urination) related to inflamed urinary tract

3) Altered nutritional status less than body requirement related to immaturity, parental knowledge deficit

4) Altered elimination urinary pattern (frequent urination, dysuria, and pyuria) related to urinary tract inflammation

5) High risk for infection related to from lower to upper urinary tract

6) Altered sleep pattern related to frequent urination

7) Knowledge deficit of mothers regarding prevention of urinary tract infection

S. No	Assessment	Nursing Diagnosis	Goal	Planning	Implementation	Rational	Evaluation
1.	**Subjective data:** The mother verbalizes that her child is having fever, not taking food. **Objective data:** The child is having hyperthermia, 99.8 F, increased sweat, thirst,	Altered body temperature (hyperthermia) related to inflammatory response to infection	The child's fever will minimize	Provide comfort position and bed Give tepid sponging Provide good ventilation Advice mother wear cotton clothes to the child Administer antipyretics as ordered	Provided comfort position and bed by proper bed making Provided tepid sponging Provided ventilation by opening windows, putting fan Advised mother wear cotton clothes to child	It helps to give comfort to the child It helps to reduce temperature of the child It helps to provide comfort feeling to the child It helps to improve excretion of sweat It helps to reduce fever	The child's fever was reduced to 98.4F

2.	**Subjective data:** The mother verbalizes her child is having pain in lower abdomen, painful urination **Objective data:-** Child has pain shows by facial expression	Pain(abdominal pain, painful urination) related to inflamed urinary tract	The child's pain will minimize	Assess the level of pain Provide comfort position which ever the child likes Give hot application over lower abdomen Provide diversion therapy Monitor vital signs Administer pain relievers as ordered	Assessed the level of pain sharp throbbing pain Provided comfort position which ever the child likes Given hot application over lower abdomen Provided diversion therapy by involving play Monitored vital signs Administered pain relievers as ordered	It provides baseline data It helps to improve comfort It helps to improve circulation through reduces pain It helps to divert the mind from pain It helps to know the child's condition It helps to relieve pain	Child's pain was minimized to some extent

3.	**Subjective data:** The mother verbalizes her child is not feeding **Objective data:-** Child has weight loss Sunken eyes	Altered nutritional status less than body requirement related to immaturity, parental knowledge deficit.	The baby's nutritional status will maintain at normal level.	Assess the child's likes and dislikes Provide small and frequent diet Monitor intake and output chart Monitor weight daily Provide high calorie, protein diet	Assessed the child's likes and dislikes Provided small and frequent diet Monitored intake and output chart Monitored weight daily Provided high calorie, protein diet	It provides the baseline data It helps to improve the intake of food It helps to know the child's condition It helps to know the child's condition It helps to improve nutrition diet intake	Child's nutritional status was improved to some extent

4.	**Subjective data:-** The mother complaints that child is voiding frequently, pain while voiding **Objective data:-** The child has frequent urination ,pyuria	Altered elimination (urinary pattern) – [frequent urination, dysuria, pyuria] related to urinary tract inflammation	The child's urinary elimination will improve	Advise the child go to toilet when ever feels to urinate Advise more fluids Provide adequate time to urinate Provide warm compress over lower abdomen Send urine sample for investigations Administer antibiotics as ordered	Advised the child go to toilet when ever feels to urinate Advised more fluids Provided adequate time to urinate Provided warm compress over lower abdomen Sent urine sample for investigations Administered antibiotics as ordered	It helps to maintain normal urine output It helps to improve the hydration and urine output It helps to void properly It helps to improve the urine output and reduces pain It helps to know any abnormal pattern in urine It helps to reduce inflammatory process	The child's urinary pattern was improved to some extent

5.	Objective data:- The child is having infection in the urinary tract so chances for getting infection to other regions	High risk for infection related to from lower to upper urinary tract	The child's infection will minimize	Assess the child's condition Observe the urinary pattern Investigate urine for any micro organisms Provide fluids about 5 liters /day Do USG scanning to rule out any extension of infection Administer antibiotics according to culture report	Assessed the child's condition Observed the urinary pattern Investigated urine for any micro organisms there was presence of infective organisms Provided fluids about 5 liters /day Done USG scanning to rule out any extension of infection Administered antibiotics according to culture report	It provides the baseline data It helps to prevent further infection It helps to identify proper microorganisms It helps to increase excretion flushing of microbes It helps to treat and prevent infection It helps to prevent the infection	The child's infection was minimized

6.	**Subjective data:** Mother expresses that child is not sleeping properly **Objective data:-** The child has daytime yarning, tired	Altered sleep pattern related to frequent urination	The child's sleep pattern will improve	Provide comfort bed to the child Give warm milk Advice warm shower Provide adequate time to void Provide pain relievers	Provided comfort bed to the child Given warm milk Advised warm shower Provided adequate time to void Provided pain relievers	It helps to improve comfort It helps to improve sleep It helps to induce sleep It helps to give feeling of comfort It helps to reduce pain	The child's sleep pattern was improved

7.	objective data: the mother doesn't know about anything regarding urinary tract infection	Knowledge deficit of mothers regarding prevention of urinary tract infection	The child's mother will improve knowledge about preventing urinary tract infection	Assess the level of mother about urinary tract infection Explain about urinary tract of children Explain about infection in the urinary tract Teach about toilet training for mothers Teach about voiding habits to the child	Assessed the level of mother about urinary tract infection Explained about urinary tract of children Explained about infection in the urinary tract Taught about toilet training for mothers Taught about voiding habits to the child	It helps to know the mother's knowledge It helps to improve the knowledge It helps to improve the knowledge It helps to improve voiding pattern It helps to prevent further infection	The child's mother got adequate knowledge on prevention of urinary tract infection

APPENDIX-V

CASE ANALYSIS

Sample no: 1

The child was admitted in the pediatric ward the complaints of fever, vomiting, loss of appetite, abdominal pain, haematuria, dysuria, dark urine. Vital signs were recorded, provided comfortable position, tepid sponging, and hot application over lower abdomen, administered medications to the child. Intake and output chart daily maintained, taught toilet training, voiding habits and health education given about personal, perineal hygiene. On fifth day the child was comfortable and discharged from the pediatric ward.

Sample no: 2

The child was admitted in the pediatric ward the complaints of fever, vomiting, loss of appetite, abdominal pain, haematuria, dysuria, dark urine. Vital signs were recorded, provided comfortable position, tepid sponging, and hot application over lower abdomen, administered medications to the child. Intake and output chart daily maintained, taught toilet training, voiding habits and health education given about personal, perineal hygiene. On fifth day the child was comfortable and discharged from the pediatric ward.

Sample no: 3

The child was admitted in the pediatric ward the complaints of fever, vomiting, loss of appetite, abdominal pain, haematuria, dysuria, dark urine. Vital signs were recorded, provided comfortable position, tepid

sponging, and hot application over lower abdomen, administered medications to the child. Intake and output chart daily maintained, taught toilet training, voiding habits and health education given about personal, perineal hygiene. On fifth day the child was comfortable and discharged from the pediatric ward.

Sample no: 4

The child was admitted in the pediatric ward the complaints of fever, vomiting, loss of appetite, abdominal pain, haematuria, dysuria, dark urine. Vital signs were recorded, provided comfortable position, tepid sponging, and hot application over lower abdomen, administered medications to the child. Intake and output chart daily maintained, taught toilet training, voiding habits and health education given about personal, perineal hygiene. On fifth day the child was comfortable and discharged from the pediatric ward.

Sample no: 5

The child was admitted in the pediatric ward the complaints of fever, vomiting, loss of appetite, abdominal pain, haematuria, dysuria, dark urine. Vital signs were recorded, provided comfortable position, tepid sponging, and hot application over lower abdomen, administered medications to the child. Intake and output chart daily maintained, taught toilet training, voiding habits and health education given about personal, perineal hygiene. On fifth day the child was comfortable and discharged from the pediatric ward.

Sample no: 6

The child was admitted in the pediatric ward the complaints of fever, vomiting, loss of appetite, abdominal pain, haematuria, dysuria, dark urine. Vital signs were recorded, provided comfortable position, tepid sponging, and hot application over lower abdomen, administered medications to the child. Intake and output chart daily maintained, taught toilet training, voiding habits and health education given about personal, perineal hygiene. On fifth day the child was comfortable and discharged from the pediatric ward.

Sample no: 7

The child was admitted in the pediatric ward the complaints of fever, vomiting, loss of appetite, abdominal pain, haematuria, dysuria, dark urine. Vital signs were recorded, provided comfortable position, tepid sponging, and hot application over lower abdomen, administered medications to the child. Intake and output chart daily maintained, taught toilet training, voiding habits and health education given about personal, perineal hygiene. On fifth day the child was comfortable and discharged from the pediatric ward

Sample no: 8

The child was admitted in the pediatric ward the complaints of fever, vomiting, loss of appetite, abdominal pain, haematuria, dysuria, dark urine. Vital signs were recorded, provided comfortable position, tepid sponging, and hot application over lower abdomen, administered medications to the child. Intake and output chart daily maintained, taught toilet training, voiding habits and health education given about personal,

perineal hygiene. On fifth day the child was comfortable and discharged from the pediatric ward

Sample no: 9

The child was admitted in the pediatric ward the complaints of fever, vomiting, loss of appetite, abdominal pain, haematuria, dysuria, dark urine. Vital signs were recorded, provided comfortable position, tepid sponging, and hot application over lower abdomen, administered medications to the child. Intake and output chart daily maintained, taught toilet training, voiding habits and health education given about personal, perineal hygiene. On fifth day the child was comfortable and discharged from the pediatric ward

Sample no: 10

The child was admitted in the pediatric ward the complaints of fever, vomiting, loss of appetite, abdominal pain, haematuria, dysuria, dark urine. Vital signs were recorded, provided comfortable position, tepid sponging, and hot application over lower abdomen, administered medications to the child. Intake and output chart daily maintained, taught toilet training, voiding habits and health education given about personal, perineal hygiene. On fifth day the child was comfortable and discharged from the pediatric ward

Sample no: 11

The child was admitted in the pediatric ward the complaints of fever, vomiting, loss of appetite, abdominal pain, haematuria, dysuria, dark urine. Vital signs were recorded, provided comfortable position, tepid sponging, and hot application over lower abdomen, administered

medications to the child. Intake and output chart daily maintained, taught toilet training, voiding habits and health education given about personal, perineal hygiene. On fifth day the child was comfortable and discharged from the pediatric ward

Sample no: 12

The child was admitted in the pediatric ward the complaints of fever, vomiting, loss of appetite, abdominal pain, haematuria, dysuria, dark urine. Vital signs were recorded, provided comfortable position, tepid sponging, and hot application over lower abdomen, administered medications to the child. Intake and output chart daily maintained, taught toilet training, voiding habits and health education given about personal, perineal hygiene. On fifth day the child was comfortable and discharged from the pediatric ward

Sample no: 13

The child was admitted in the pediatric ward the complaints of fever, vomiting, loss of appetite, abdominal pain, haematuria, dysuria, dark urine. Vital signs were recorded, provided comfortable position, tepid sponging, and hot application over lower abdomen, administered medications to the child. Intake and output chart daily maintained, taught toilet training, voiding habits and health education given about personal, perineal hygiene. On fifth day the child was comfortable and discharged from the pediatric ward

Sample no: 14

The child was admitted in the pediatric ward the complaints of fever, vomiting, loss of appetite, abdominal pain, haematuria, dysuria, dark

urine. Vital signs were recorded, provided comfortable position, tepid sponging, and hot application over lower abdomen, administered medications to the child. Intake and output chart daily maintained, taught toilet training, voiding habits and health education given about personal, perineal hygiene. On fifth day the child was comfortable and discharged from the pediatric ward

Sample no: 15

The child was admitted in the pediatric ward the complaints of fever, vomiting, loss of appetite, abdominal pain, haematuria, dysuria, dark urine. Vital signs were recorded, provided comfortable position, tepid sponging, and hot application over lower abdomen, administered medications to the child. Intake and output chart daily maintained, taught toilet training, voiding habits and health education given about personal, perineal hygiene. On fifth day the child was comfortable and discharged from the pediatric ward

Sample no: 16

The child was admitted in the pediatric ward the complaints of fever, vomiting, loss of appetite, abdominal pain, haematuria, dysuria, dark urine. Vital signs were recorded, provided comfortable position, tepid sponging, and hot application over lower abdomen, administered medications to the child. Intake and output chart daily maintained, taught toilet training, voiding habits and health education given about personal, perineal hygiene. On fifth day the child was comfortable and discharged from the pediatric ward

Sample no: 17

The child was admitted in the pediatric ward the complaints of fever, vomiting, loss of appetite, abdominal pain, haematuria, dysuria, dark urine. Vital signs were recorded, provided comfortable position, tepid sponging, and hot application over lower abdomen, administered medications to the child. Intake and output chart daily maintained, taught toilet training, voiding habits and health education given about personal, perineal hygiene. On fifth day the child was comfortable and discharged from the pediatric ward

Sample no: 18

The child was admitted in the pediatric ward the complaints of fever, vomiting, loss of appetite, abdominal pain, haematuria, dysuria, dark urine. Vital signs were recorded, provided comfortable position, tepid sponging, and hot application over lower abdomen, administered medications to the child. Intake and output chart daily maintained, taught toilet training, voiding habits and health education given about personal, perineal hygiene. On fifth day the child was comfortable and discharged from the pediatric ward

Sample no: 19

The child was admitted in the pediatric ward the complaints of fever, vomiting, loss of appetite, abdominal pain, haematuria, dysuria, dark urine. Vital signs were recorded, provided comfortable position, tepid sponging, and hot application over lower abdomen, administered medications to the child. Intake and output chart daily maintained, taught toilet training, voiding habits and health education given about personal,

perineal hygiene. On fifth day the child was comfortable and discharged from the pediatric ward

Sample no: 20

The child was admitted in the pediatric ward the complaints of fever, vomiting, loss of appetite, abdominal pain, haematuria, dysuria, dark urine. Vital signs were recorded, provided comfortable position, tepid sponging, and hot application over lower abdomen, administered medications to the child. Intake and output chart daily maintained, taught toilet training, voiding habits and health education given about personal, perineal hygiene. On fifth day the child was comfortable and discharged from the pediatric ward

Sample no: 21

The child was admitted in the pediatric ward the complaints of fever, vomiting, loss of appetite, abdominal pain, haematuria, dysuria, dark urine. Vital signs were recorded, provided comfortable position, tepid sponging, and hot application over lower abdomen, administered medications to the child. Intake and output chart daily maintained, taught toilet training, voiding habits and health education given about personal, perineal hygiene. On fifth day the child was comfortable and discharged from the pediatric ward

Sample no: 22

The child was admitted in the pediatric ward the complaints of fever, vomiting, loss of appetite, abdominal pain, haematuria, dysuria, dark urine. Vital signs were recorded, provided comfortable position, tepid sponging, and hot application over lower abdomen, administered

medications to the child. Intake and output chart daily maintained, taught toilet training, voiding habits and health education given about personal, perineal hygiene. On fifth day the child was comfortable and discharged from the pediatric ward

Sample no: 23

The child was admitted in the pediatric ward the complaints of fever, vomiting, loss of appetite, abdominal pain, haematuria, dysuria, dark urine. Vital signs were recorded, provided comfortable position, tepid sponging, and hot application over lower abdomen, administered medications to the child. Intake and output chart daily maintained, taught toilet training, voiding habits and health education given about personal, perineal hygiene. On fifth day the child was comfortable and discharged from the pediatric ward

Sample no: 24

The child was admitted in the pediatric ward the complaints of fever, vomiting, loss of appetite, abdominal pain, haematuria, dysuria, dark urine. Vital signs were recorded, provided comfortable position, tepid sponging, and hot application over lower abdomen, administered medications to the child. Intake and output chart daily maintained, taught toilet training, voiding habits and health education given about personal, perineal hygiene. On fifth day the child was comfortable and discharged from the pediatric ward

Sample no: 25

The child was admitted in the pediatric ward the complaints of fever, vomiting, loss of appetite, abdominal pain, haematuria, dysuria, dark

urine. Vital signs were recorded, provided comfortable position, tepid sponging, and hot application over lower abdomen, administered medications to the child. Intake and output chart daily maintained, taught toilet training, voiding habits and health education given about personal, perineal hygiene. On fifth day the child was comfortable and discharged from the pediatric ward

Sample no: 26

The child was admitted in the pediatric ward the complaints of fever, vomiting, loss of appetite, abdominal pain, haematuria, dysuria, dark urine. Vital signs were recorded, provided comfortable position, tepid sponging, and hot application over lower abdomen, administered medications to the child. Intake and output chart daily maintained, taught toilet training, voiding habits and health education given about personal, perineal hygiene. On fifth day the child was comfortable and discharged from the pediatric ward

Sample no: 27

The child was admitted in the pediatric ward the complaints of fever, vomiting, loss of appetite, abdominal pain, haematuria, dysuria, dark urine. Vital signs were recorded, provided comfortable position, tepid sponging, and hot application over lower abdomen, administered medications to the child. Intake and output chart daily maintained, taught toilet training, voiding habits and health education given about personal, perineal hygiene. On fifth day the child was comfortable and discharged from the pediatric ward

Sample no: 28

The child was admitted in the pediatric ward the complaints of fever, vomiting, loss of appetite, abdominal pain, haematuria, dysuria, dark urine. Vital signs were recorded, provided comfortable position, tepid sponging, and hot application over lower abdomen, administered medications to the child. Intake and output chart daily maintained, taught toilet training, voiding habits and health education given about personal, perineal hygiene. On fifth day the child was comfortable and discharged from the pediatric ward.

Sample no: 29

The child was admitted in the pediatric ward the complaints of fever, vomiting, loss of appetite, abdominal pain, haematuria, dysuria, dark urine. Vital signs were recorded, provided comfortable position, tepid sponging, and hot application over lower abdomen, administered medications to the child. Intake and output chart daily maintained, taught toilet training, voiding habits and health education given about personal, perineal hygiene. On fifth day the child was comfortable and discharged from the pediatric ward.

Sample no: 30

The child was admitted in the pediatric ward the complaints of fever, vomiting, loss of appetite, abdominal pain, haematuria, dysuria, dark urine. Vital signs were recorded, provided comfortable position, tepid sponging, and hot application over lower abdomen, administered medications to the child. Intake and output chart daily maintained, taught toilet training, voiding habits and health education given about personal, perineal hygiene. On fifth day the child was comfortable and discharged from the pediatric ward.